



Studies at

in the Navajo Reservoir District


by
James J. Hester and Joel L. Shiner

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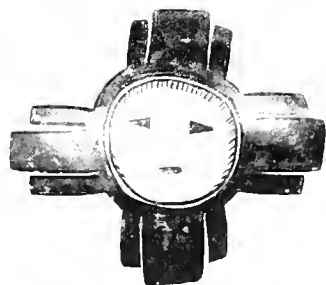
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A Salvage Archaeology program conducted by the Museum of New Mexico in cooperation with the National Park Service, Southwest Region, Department of the Interior, in the Navajo Reservoir District of the Upper Colorado Storage Project.

Edited by

ROBERT G. FERRIS

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TABLE OF CONTENTS

PREFACE AND ACKNOWLEDGEMENTS	1
CHAPTER I - PROBLEMS AND RESULTS	3
Background: the 1959 Survey	3
The Sites	3
The Setting	4
Research Procedures.	5
Conclusions	5
CHAPTER II - THE ROSA SECTION	7
Ramada Village, LA 4199.	7
Situation and Resources.	7
Description	8
Research Procedure	8
Architecture	8
Summary of Architecture	17
Artifact Description	17
Artifact Discussion	23
Reconstruction of Events	24
Discussion	25
CHAPTER III - THE LA JARA AND FRANCES SECTIONS.	26
Setting.	26
LA 4411.	27
The Shelters.	27
Artifact Description	29
LA 4314.	29
Situation	29
Description.	29
Architecture	30
Artifact Description	31
Discussion	31
LA 4312	32
Description.	32
Artifact Description	33
LA 4331.	33
Description	33
Architecture	34
Artifact Description	36
Discussion	38
LA 4072	38
Architecture	38
The Cremation	38
Age of the Site.	39
Summary	40
CHAPTER IV - THE PINE RIVER SECTION	41
Situation and Resources.	41
LA 4294.	41
Architecture	41
Artifact Description	45
Artifact Discussion	46
Reconstruction of Events	46
LA 4297.	47
Architecture	47
Artifact Description	51
Artifact Discussion	53
Architectural Age of the Site	53

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Todosio Rock Shelter, LA 4298.	53
Shelter 1	53
Shelter 2	59
Artifact Description	59
Artifact Discussion	65
LA 4299.	65
Architecture	67
Artifact Description	67
Age of the Site.	67
Summary.	68
CHAPTER V - SUMMARY OF ARCHITECTURE	69
Site Types.	69
Hogan Village	69
Multiple Unit Open Site	69
Pueblitos	69
Rock Shelters	69
Discussion	73
CHAPTER VI - SUMMARY OF MATERIAL CULTURE	74
Pre-Navajo Remains	74
Navajo Period	74
The Artifacts of the Navajo Period.	74
The Dinetah Phase	76
The Gobernador Phase	77
Period Synthesis	77
APPENDIX - List of Previous Navajo Project Studies	78
BIBLIOGRAPHY.	79

LIST OF FIGURES

1. Distribution of Navajo Period sites in the Navajo Reservoir	2
2. Map showing location of LA 4199 near the junction of Sambrito Creek and the San Juan River	6
3. Site situation of LA 4199 showing stepped nature of Pleistocene terraces with the escarpment of Burnt Mesa in the background.	7
4. Plan of LA 4199	9
5. Broadside 1, LA 4199, after excavation.	10
6. Hogan 1, LA 4199, after excavation	10
7. Plan and profile of Hogan 1, LA 4199	10
8. Plan and profile of Hogan 2, LA 4199	11
9. Plan and profile of Hogan 3, LA 4199	12
10. Hogan 4, LA 4199, after excavation	13
11. Plan and profile of Hogan 4, LA 4199	14
12. Hogan 5, LA 4199, after excavation	15
13. Plan and profile of Hogan 5, LA 4199	16
14. Metate Rest 1, LA 4199, after excavation	16
15. Surface Structure, LA 4199	17
16. Plan and profile of Surface Structure, LA 4199	17
17. Sherd types from LA 4199	18
18a. Chipped and flaked stone artifacts, LA 4199	21
18b. Ground stone artifacts, LA 4199	23
19. Sites excavated in the La Jara Section LA 4411, LA 4312, LA 4314, and LA 4331	26
20. View of LA 4411	27
21. Plan and profiles of LA 4411.	28
22. Prayer stick, LA 4411	29
23. Plan and profile of LA 4314	30
24. View of LA 4314	30
25. Comal from LA 4314	32
26. Views of LA 4331, an excavated Pueblito	34
27. Plan of LA 4331	35
28. Plan and profiles of LA 4072.	39
29. Map of sites excavated in the Pine River Section.	42

30.	View of floored area of Rock Shelter after the masonry walls have been removed, LA 4294	43
31.	Fire pit in south room, LA 4294.	43
32.	LA 4294 during excavation	43
33.	Structures of late occupation after excavation, LA 4294.	43
34.	Plans and profile of Rock Shelter, LA 4294, showing the early and late occupations . . .	44
35.	Gourd dipper, LA 4294	46
36.	Plan of LA 4297, indicating surface features and extent of excavations	48
37.	Cooking pit and metate bin, LA 4297	49
38.	Plans and profiles of Hogan 1, LA 4297, showing early and late floors	49
39.	View of late occupation, Hogan 1, LA 4297	50
40.	Plan of Hogan 2, LA 4297.	51
41.	Hogan 2, LA 4297, after excavation	51
42.	Cross-section of Rock Pile 1, LA 4297, after excavation showing the nature of the fill . .	51
43.	Chipped stone, LA 4297	52
44.	Shelter 1, LA 4298, during excavation	53
45.	Plans and profiles of Rock Shelter, LA 4298, showing upper and lower occupations . . .	55
46.	Plans and profiles of Pits 1-13, LA 4298	56
47.	Pits 1,2,4,5,6, and 7, LA 4298	57
48.	Pits 8-13 with Burial 3 in Pit 12, LA 4298	57
49.	Burial 1 in Pit 4, LA 4298	58
50.	View of Burial 3 in Pit 12, LA 4298	58
51.	View of Shelter 2, LA 4298, from the south	59
52.	Gobernador Indented jar, LA 4298	59
53.	Sambrito Brown jar, LA 4298	60
54.	Plan and profile of Shelter 2, LA 4298	61
55.	Artifacts from LA 4298	62
56.	Cupped-heel sandals, LA 4298	63
57.	Bone tools, LA 4298	64
58.	Pipes, LA 4298.	64
59.	Detail of feather robe, Burial 3, in Pit 12, LA 4298.	65
60.	Plan and profiles of LA 4299.	66
61.	View to the north showing remains of Room 1, LA 4299	67
62.	View to the south showing remains of walls forming Rooms 2 and 3, LA 4299.	67
63.	Details of wall construction, LA 4299	68

LIST OF TABLES

1. Resume of Navajo Sites in this Report	4
2. Pottery Types by Location, LA 4199, in Percentages	19
3. Artifacts by Location, LA 4199.	20
4. Stone types by Location, LA 4199	24
5. Stone Types by Location, LA 4411.	29
6. Artifacts by Location, LA 4411.	29
7. Pottery Types by Location, LA 4314, in Percentages	31
8. Stone Types by Location, LA 4314.	31
9. Artifacts by Location, LA 4314.	31
10. Pottery Types by Location, LA 4312, in Percentages	32
11. Stone Types by Location, LA 4312.	33
12. Pottery Types by Location, LA 4331, in Percentages	36
13. Stone Types by Location, LA 4331.	37
14. Artifacts by Location, LA 4331.	37
15. Stone Types by Location, LA 4294.	45
16. Artifacts by Location, LA 4294	45
17. Pottery Types by Location, LA 4294, in Percentages	46
18. Pottery Types by Location, LA 4297, in Percentages	52
19. Stone Types by Location, LA 4297.	52
20. Artifacts by Location, LA 4297.	52
21. Burial Practices, LA 4298.	57
22. Pottery Types by Location, LA 4298, in Percentages	60
23. Stone Types by Location, Shelter 1, LA 4298	62
24. Imperishable Artifacts by Location, LA 4298.	62
25. Perishable Artifacts by Location, LA 4298	63
26. Artifacts by Location, LA 4299.	68
27. Architectural Summary by Structure	70 & 71
28. Architectural Summary by Site	72

PREFACE AND ACKNOWLEDGMENTS

This publication, the eighth in a series of Navajo Project Studies, discusses ten Navajo Period sites that were excavated in 1959 and 1960 by the Museum of New Mexico. The excavations were performed under a contract with the National Park Service, Southwest Region, Department of the Interior. Total excavation time was one month in each field season, using a crew of five laborers from Taos, New Mexico.

The sites involved lie within the confines of the Reservoir which will be formed by the construction of the Navajo Dam on the San Juan River, in northwestern New Mexico. The Reservoir area to be inundated includes twenty-three square miles. This area was surveyed in 1959 and 454 archaeological sites were located (Dittert, Hester and Eddy, 1961). The next step in this program of salvage archaeology has been a series of excavations at representative sites of each cultural period identified. The results of previous excavations and special studies have been published as Navajo Project Studies listed in the Appendix.

In addition to the sites reported here, a number of other Navajo Period sites excavated under the direction of A. E. Dittert, Jr. will be discussed in a future volume in this series.

Archaeologists participating in the excavations described herein include A. E. Dittert, Jr., J. Anthony Pomeroy, W. D. Gerritsen, and James O. Marshall. All these individuals played

an important part in the recovery of field data.

Numerous specimens recovered from the excavations required precise identification and study beyond the capabilities of the Museum Staff. Acknowledgement is made to the following persons and institutions for their expert analyses: Hugh C. Cutler, Missouri Botanical Gardens, for corn and cucurbits; Richard Forbes, University of New Mexico, for faunal remains; Lyndon L. Hargrave, Southwest Archaeological Center, for bird bones and feathers; Lawrence Kaplan, Roosevelt University, for beans; and the Laboratory of Tree-Ring Research, University of Arizona, for dendrochronological specimens.

Direction and counsel throughout all phases of this study were provided by Allred E. Dittert, Jr., and Frank W. Eddy.

Processing of the specimens of material culture has been the responsibility of the Navajo Project laboratory staff, which included Beth L. Dickey, Barbara Peckham, Richard Register, and Mary Beth Stokes. The cleaning, preservation and recording work of these individuals has made the task of describing them much easier.

Of the two authors, Hester prepared the site and architectural descriptions, and Shiner the sections on material culture objects. They are jointly responsible for general interpretations.

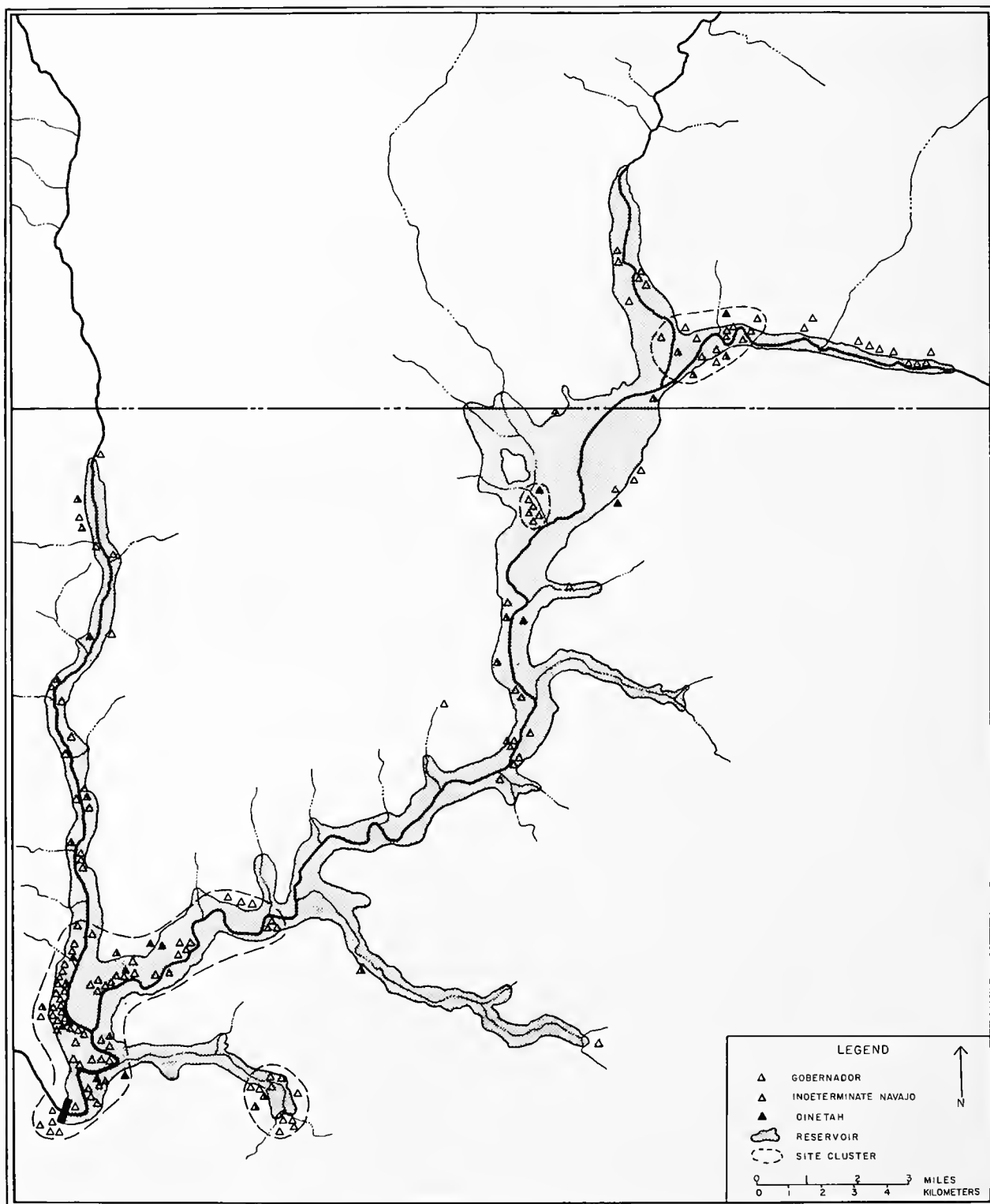


Fig. 1. Distribution of Navajo Period sites in the Navajo Reservoir.

CHAPTER I

PROBLEMS AND RESULTS

BACKGROUND: THE 1959 SURVEY

The basic survey of the Navajo Reservoir revealed a total of 170 Navajo components distributed throughout the area, but concentrations were discovered at the junction of the Pine and San Juan Rivers, the mouth of Sambrito Creek, the junction of the Piedra and San Juan Rivers, and in upper Frances Canyon (Fig. 1). These components were classified into four site types: single unit, multiple unit, village, and rock shelter, each of which occurs in different frequencies in the eleven different site situations (Dittert, et al., 1961, Fig. 33).

These three cultural phases are represented at the sites: Dinétah Phase (1550-1696), the period of initial Navajo-Pueblo contact; Gobernador Phase (1696-1775); the Refugee Pueblo Period; and indeterminate Navajo, for sites without diagnostic phase determinants. Non-habitation sites are represented by pictograph panels, which are considered separately by Schaafsma (1963).

Considering the number and diversity of the Navajo remains in the Reservoir, a difficult sampling problem existed. To ascertain the range in variation of the sites, a sample of each type of site had to be selected for excavation. A further sampling problem

existed because 140 of the 170 components recorded were assigned to the Gobernador Phase, thus leaving few sites from the earlier Navajo occupations to excavate.

Selection of the sites for excavation also was affected by the following considerations: 1) Sites at lower elevations were selected first because of the danger of early flooding. 2) Rock shelters offering promise of preserved perishable artifacts were given high priority. 3) The total excavation time allotted to Navajo sites was determined by budgetary considerations and the amount of archaeological remains of other cultural periods which had to be salvaged.

In the final analysis, the number of Navajo sites excavated is high in proportion to the total number of Navajo sites in the Reservoir. Many of these sites are small and could be excavated quickly.

Sites excavated are primarily of the Gobernador Phase. Because few archaeological reports deal with this phase, the present report is a major addition to treatments of Navajo archaeology (Hester, 1962, Tables I and II).

THE SITES

The sites discussed in this volume include one hogan village, one multiple unit hogan site, one single unit hogan site, two single unit pueblitos, and five rock shelters. Survey data on these sites are itemized in Table 1 and map references will not be repeated for each site. Explanation of terms used is pre-

sented in detail in the survey volume by Dittert, et al. (1961, pp. 40-53).

As reported in the survey volume, Early Pueblo components are present in several of these sites. These components were excavated and will be described herein.

TABLE 1
RESUME OF NAVAJO SITES IN THIS REPORT

LA Number	Location	Phases	Site Type, Size and Features	Situation	Remarks
4199	Sec. 22 T32N,R6W Rosa Sec.	Gobernador Piedra	Village (50x200') 5 hogans, 1 ramada. Single Unit, 1 slab base surface structure.	Edge of 2nd bench	Chapter II
4072	Sec. 17 T30N,R7W Frances Sec.	Navajo (?)	Rock shelter, 1 sandstone masonry structure.	Cliff above 1st bench	Chapter III Human cremation No sherds
4294	Sec. 19 T31N,R7W Pine River Sec.	Navajo	Rock shelter (8x50'), 1(?) sandstone masonry wall.	Cliff below 2nd bench	Chapter IV Perishable material
4297	Sec. 20 T31N,R7W Pine River Sec.	Gobernador Rosa	Single Unit (150x300') 3 hearths, refuse. Single Unit, (?) cobble alignments.	2nd bench	Chapter IV Large Navajo cracked rock hearths
4298	Sec. 30 T31N,R7W Pine River Sec.	Sambrito Navajo	Rock shelter (20x60')	Cliff face	Chapter IV Perishable material
4299	Sec. 30 T31N,R7W Pine River Sec.	Indeterminate Navajo	Rock shelter (8x40'), sand- stone masonry retaining walls.	Cliff face	Chapter IV Perishable material
4312	Sec. 5 T30N,R7W La Jara Sec.	Gobernador	Multiple Unit (100x200'), 3 hogans.	1st bench	Chapter III Single Phase
4314	Sec. 5 T30N,R7W La Jara Sec.	Gobernador	Single Unit (50x100'), 1 sandstone masonry surface structure, refuse.	1st bench	Chapter III Single Phase Refugee structure
4331	Sec. 4 T30N, R7W La Jara Sec.	Gobernador	Single Unit (10x25'), 1 sandstone masonry surface structure.	Talus slope	Chapter III Single Phase Refugee Pueblo On natural boulder
4411	Sec. 5 T30N,R7W La Jara Sec.	Navajo	Rock shelters (20x100') two units	Cliff below 1st bench	Chapter III Perishable material

THE SETTING

Navajo remains are located in all of the terrain situations identified in the Navajo Reservoir except in the current flood plain. The greatest majority of the sites are near the edge of the first or second benches. These benches have been identified tentatively as Pleistocene, and are so designated in this volume. Few sites above the second bench were excavated during the research for this volume.

Most of the sites on the first and second benches overlook areas in the river valley that are suitable for farming. Rock shelters located in the cliffs below these benches were used for storage and were occasionally inhabited. Therefore, the entire area within the canyon was utilized by the Navajo, though in a variety of ways.

RESEARCH PROCEDURES

Techniques of excavation and recording conformed to the unified system employed by the Museum of New Mexico. The system was adopted primarily to deal with salvage operations, and stresses the standardization of records, notes and journals. A detailed explanation of the

system has been mimeographed (Dittert and Wendorf, 1962).

Each site excavated presented special problems, and required different techniques. These are described for each site.

CONCLUSIONS

The majority of Navajo sites in the Reservoir represent a brief interval of time, dating from just prior to 1700 until 1775 (Dittert, et al., 1961, pp. 244-245). This period of Navajo cultural history, termed the Gobernador Phase, represents a period of assimilation of Puebloan culture traits. Pueblo refugees fled northward after their defeat by the Spanish at the end of the Pueblo Revolt, and contact with the Navajos took place primarily in the Gobernador and Largo drainage.

Within the Reservoir, however, our evidence shows that limited contacts were also made. The Navajo adopted certain architectural forms of the Pueblo people, but did not abandon the hogan. Pueblo pottery was accepted, although Navajo utility ware was retained. New ceremonial practices, particularly art forms, have been discussed by Schaafsma (1963). It is apparent that what was

involved was site unit intrusion wherein the intruding culture subsequently fused with and dominated the resident culture (Lathrop, 1956, p. 1-30; Hester, 1962, p. 95). The resultant culture was ancestral to later Navajo culture, rather than to later Pueblo cultures.

The sites excavated reveal a considerable degree of variability in type. Apparently families either lived together in a group or in semi-isolation. The major social unit was the extended family but nuclear families occasionally occupied sites. Large caves were occupied, but smaller caves were utilized for storage.

Pueblitos have been described as little stone houses, pueblid in character, found near Navajo hogans (Keur, 1944, p. 77). Their presence in the Navajo Reservoir may indicate the extreme northern extension of the Pueblo refugees.

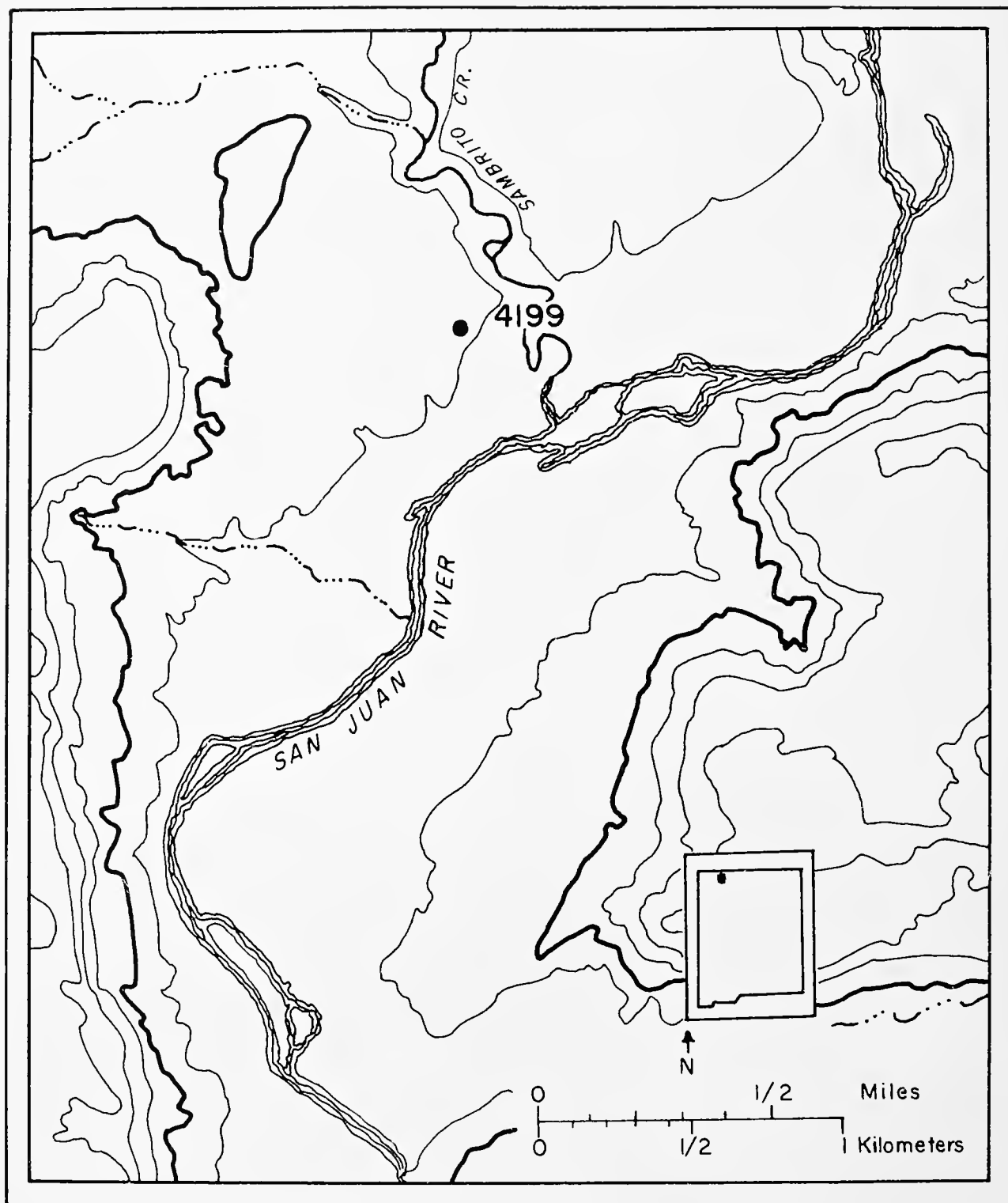


Fig. 2. Map showing location of LA 4199, near the junction of Sambrito Creek and the San Juan River.

CHAPTER II

THE ROSA SECTION

RAMADA VILLAGE LA 4199

Because LA 4199 is the largest known Gobernador Phase site found upstream from the junction of the Pine and San Juan Rivers, it was selected for early excavation. The excavations were initiated by a crew of two archaeologists and five laborers in August, 1959. It had been expected that Ramada Village would produce sufficient information about architecture and material culture to become a type site for the Gobernador Phase in the upper Reservoir. This expectation was fulfilled.

Situation and Resources

Ramada Village is near the junction of Sambrito Creek and the San Juan River, approximately 300 feet west of the creek and 600 feet north of the river, at the edge of the second Pleistocene terrace (Fig. 3). The site is open in nature and is visible from a

distance of several miles. Conversely, it is possible to see an equal distance from the site. The terraces of the river valley in this area are broad and level, and form a series of steps leading down to the river.

At this point, the bench is 100 feet above the river, at an elevation of 6020 feet. It is broad, level, and covered with sagebrush. To the north and west of the site, at a distance of approximately three-fourths of a mile, lies the escarpment of Burnt Mesa. Both the escarpment and the mesa top are covered with a dense growth of pinyon and juniper, and small numbers of ponderosa pine.

Cottonwood groves are present in the valleys of the San Juan River and Sambrito Creek. Flood plain farming would have been possible on the Recent terrace near the streams, and flood



Fig. 3. Site situation of LA 4199 showing stepped nature of Pleistocene terraces and Burnt Mesa escarpment in the background. Arrow shows location of site.

water farming or dry farming may have been practiced on the broad, level surface of the first and second Pleistocene terraces. Food animals abundant in the area today, and probably in the past, include deer, rabbits, beaver, fish and waterfowl. Elk and other animals of the Transitional Zone are present in the Piedra Peaks, some five miles to the north. Suitable materials for the manufacture of stone tools are available in the gravels that cap the Pleistocene terraces. Thus, all items necessary for the construction of a forked-stick hogan village, and for the maintenance of it and its population, were available within a short distance of LA 4199.

Description

Surface indications at the site consisted of eight or more circular areas of charcoal-stained soil, considered to be remains of forked-stick hogans. Scattered over these areas, and on the ground between them, were potsherds and stone chips. In the several disturbed areas showing evidence of "pot hunting," the trash had a depth of at least 0.9 feet. Construction beams were noticed in some of the disturbed areas. All of the cultural material was within a rectangular area 50 by 200 feet, the long dimension lying parallel to the edge of the bench (Dittert, *et al*, 1961, Table 5).

This material consisted of a Piedra and Gobernador Phase trash mixture. This mixture consisted of trash sheet-washed from a Piedra Phase pit house site, LA 4200, nearby, and existing later Navajo component deposits.

Research Procedure

Excavations were initiated by laying out two areas designated Broad-sides 1 and 2 which were to be cleared to sterile soil (Figs. 4 and 5). A total of thirteen structures within these broad-sides were given feature numbers in a single sequence for the entire site. In addition, a cairn of river cobbles, lying between the broadsides, was tested.

The method of excavation consisted of stripping off the topsoil in 0.2 to 0.3

foot levels until a concentration of cultural material was located. Once such a concentration was isolated, clearing was done with trowels.

Broadside 1 is a rectangle, 30 by 80 feet, the long axis running east to west (Fig. 5). Excavation of the unit yielded four cultural features and a pot hunter's excavation. Broadside 2 is a 60-foot square (Fig. 4). Eight cultural features were found within this excavation unit.

The total excavation time required to clear the two broadsides to sterile soil was 100 man-days.

Architecture

Navajo architecture at the site is limited to hogans, a ramada, and miscellaneous structures indicative of outdoor work areas. The hogans exhibit common features, which permits the formulation of a structural pattern (Chapter 5). During the basic survey in 1959, it was estimated that eight hogans were present at the site (Dittert, *et al*, 1961, Table 5). Excavation, however, revealed only five hogans, a ramada, a Rosa or Piedra Phase surface structure, and several outdoor work areas.

HOGAN 1 (Fig. 6 and 7)

The remains are those of a Navajo forked-sticked hogan that had burned. Exact dimensions of the floor area could not be determined. The structure is oval in form and has a dish-shaped unplastered floor. The entire surface of the floor has been oxidized as a result of the burning.

Numerous fragments of the burned juniper logs that had formed the superstructure were found lying in the floor depression and converging toward the center. They average 0.2 to 0.3 feet in diameter.

A simple fire basin had been dug into the floor toward the east side of the hogan. It is oval in form and hemispherical in profile. Also, three concentrations of unmodified river cobbles were present on the floor. Their use cannot be ascertained.

Cultural material within the structure consisted of both Rosa and Gobernador Phase artifacts. Twelve of the fifteen sherds are Gobernador Phase; the Rosa material is believed to be intrusive. The Rosa material may originally have been incorporated in the adobe which covered the superstructure.

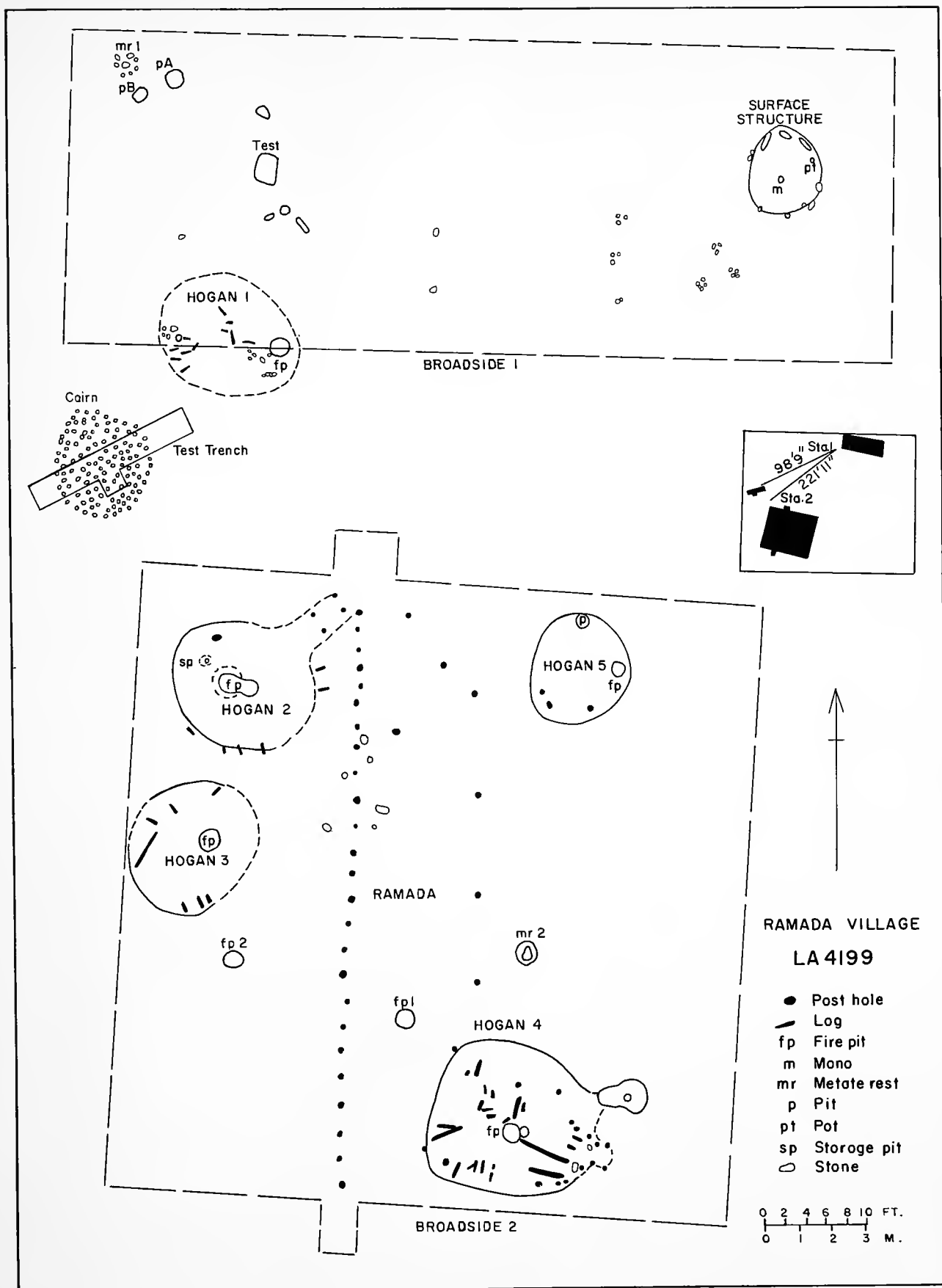


Fig. 4. Plan of LA 4199. The surface structure is Rosa or Piedra Phase in age, the rest of the features are Gobernador Phase.



Fig. 5. Broadside 1, LA 4199, after excavation. The man is standing in the Piedra Phase surface structure. The San Juan River is in the background.

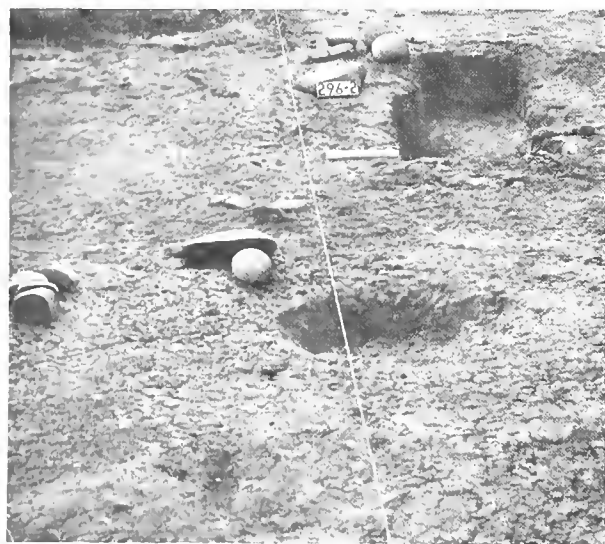


Fig. 6. Hogan 1, LA 4199, after excavation. The floor is faintly visible as an oval area having a cracked surface. The depression in the foreground is a firepit, and in the background is a test to sterile soil. The string is the boundary of Broadside 1.

HOGAN 2 (Fig. 8)

The structure represents the vandalized remains of a large forked-stick hogan. Excavation soon exposed the floor, the surface of which was traced until the entire structure had been cleared. Because of several interesting interior features, the hogan is one of the most formalized at the site.

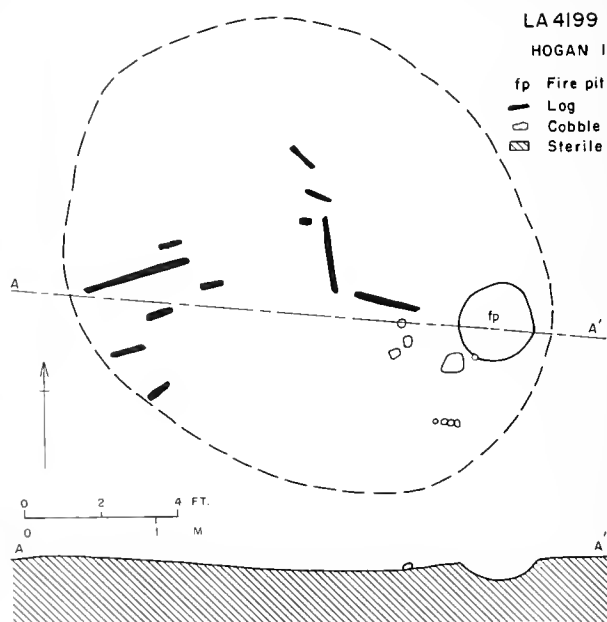


Fig. 7. Plan and profile of Hogan 1, LA 4199.

The hogan is oval in plan and has a rectangular, dug-out entryway. The floor is the surface of the sterile white clay, into which the hogan had been dug. In profile, the floor is a shallow basin, dug out more deeply along the portion of the perimeter shown as a solid line in Figure 8. The portion of the perimeter shown as a dotted line is almost level with the original surface and difficult to define with certainty.

Six portions of logs, averaging 0.2 to 0.3 feet in diameter, found lying just outside the floor perimeter, are probably the remnants of leaners to the major support logs. A hole, used either for vertical support or storage, was discovered within the room. Because vertical posts are not used in normal forked-stick hogans, use of the hole for storage seems more plausible.

A complex feature, consisting of a fire basin and a connecting undercut cooking pit, is in the center of the hogan (Fig. 8). The fire basin, a simple oval depression cut into sterile soil, is hemispherical in profile. The undercut oven, opening from the fire basin, is bell-shaped in cross-section and has a flattened bottom and a slightly oval mouth. It had been dug through a sterile clay lens, 0.4 feet into a gravel stratum of the terrace. The interior of the pit is not lined with any special material. It had been trash filled, and contained a large number of river cobbles which ranged up to one foot in the largest dimension.

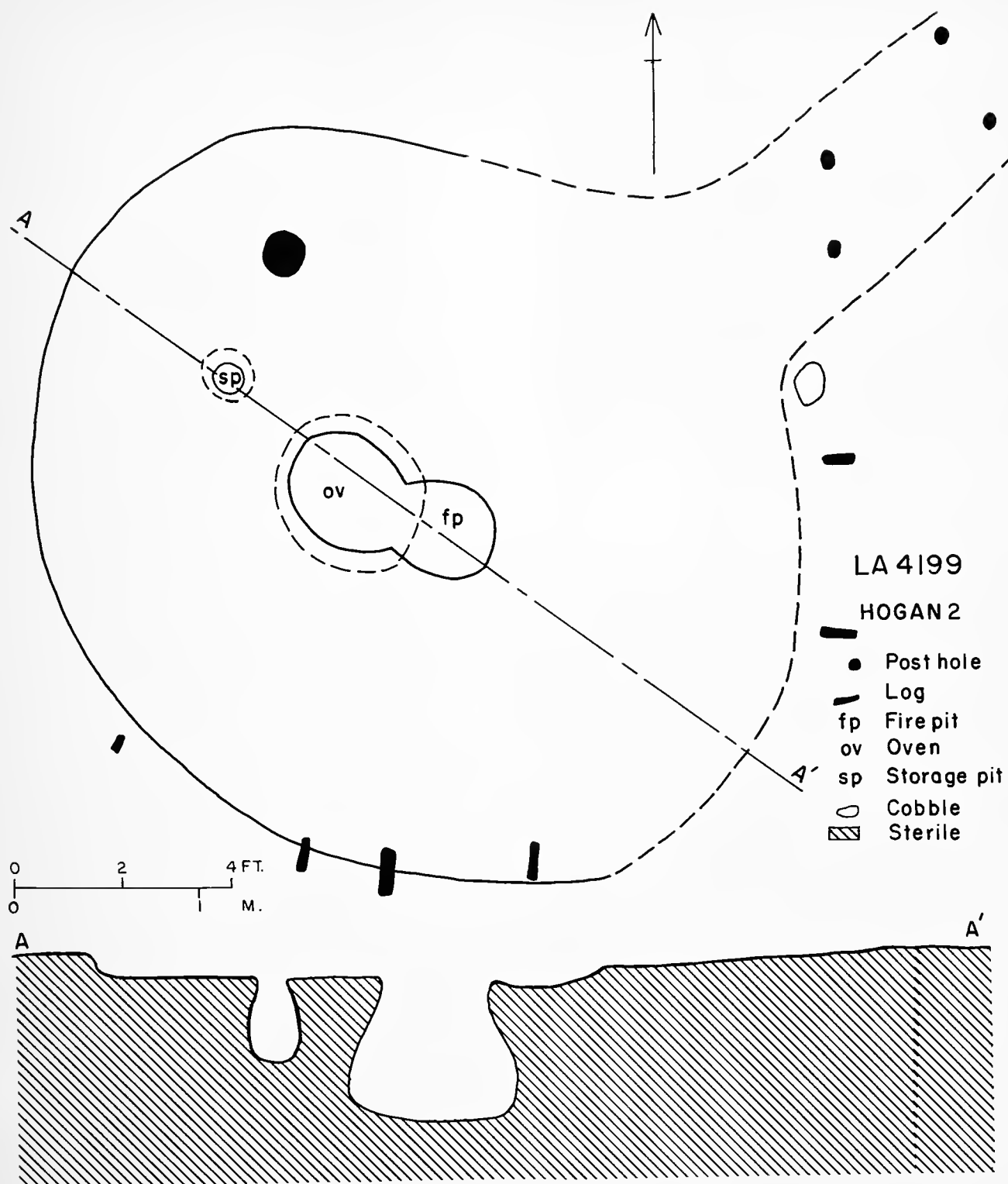


Fig. 8. Plan and profile of Hogan 2, LA 4199.

Because these cobbles are not fire-cracked, they probably were not burned in the pit. More likely, they were heated in the fire basin and then rolled into the pit. At some earlier period, however, a hot fire had been built in the pit, a fire that baked the walls a brick red. The pit would have been suitable for the baking of porcupine, as done by modern Navajo, according to Hill: "A pit was lined with heated flat rocks. These were covered with wet mud, the porcupine laid in the pit, and another layer of mud and hot stones added. Then the pit was covered with earth, and the meat allowed to cook for about an hour" (Hill, 1938, p. 173, 184).

Also in the hogan is a small undercut, bell-shaped pit having a capacity similar to that of a large pottery jar. It is quite likely that it was used for storage.

A formalized entryway extends from the hogan to the northeast. Here, four post holes formed the supports for the roof. The entryway is rectangular in plan, and the floor has a slight incline toward the hogan.

One large Dineta Utility storage jar had been crushed by the roof fall and the sherds were scattered across the hogan floor. The existence of this jar in the hogan clearly indicates that the structure is Navajo in origin.

Hogan 2, one of the best preserved structures at the site, is important for two reasons: the presence of the entryway, and the hearth-oven combination. The latter is especially significant, representing the first instance ever recorded of such an oven being placed within a hogan. The five other examples of cooking pits excavated within the Navajo Reservoir are all located outside the hogans.

HOGAN 3 (Fig. 9)

Pot hunting activities also damaged this forked-stick hogan. Because the features of this hogan are not particularly well preserved, little more than the shape and extent of the floor could be determined.

In plan, the room is slightly oval, the long axis being oriented northeast-southwest. The exact floor edge was determined for less than one-half of the circumference. No evidence exists of any entryway.

The floor is a shallow, dish-shaped depression. Unplastered, it consists merely of sterile soil. In the area where it can be well defined it has a steeper profile (solid line on Fig. 9).

Portions of seven burned juniper logs found lying on the floor near the perimeter of the hogan were all oriented towards the center, with butt ends being inside the edge of the floor excavation. They appear to be remnants of leaners that formed

the conical superstructure. The close spacing, evidenced by some of these logs, suggests that a total of 20 - 30 such leaners had been present around the hogan perimeter.

The proximity of this hogan to the ramada indicates that they were contemporaneous. An outside hearth nearby, Fire Pit 2, may have been associated with Hogan 3.

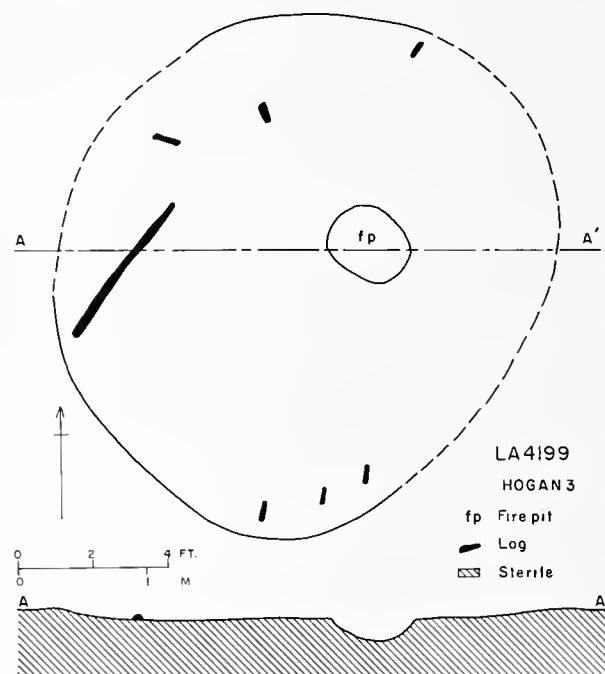


Fig. 9. Plan and profile of Hogan 3, LA 4199.

An unlined fire basin in the hogan floor, slightly east of center, is dug into the sterile soil. Several sandstone slabs were found in the back dirt of a pot hunter's excavation, in the fire pit. These slabs may have been used to form walls of the pit. Such slab-lined pits, elsewhere in the Navajo Reservoir, are rectangular in form, but this one is oval.

HOGAN 4 (Figs. 10, 11).

This is an aberrant hogan, characterized by very specific features. It differs from the hogans described above in that it has a pattern of six vertical support-posts, and a relatively deep, well-defined floor excavation. Previously, this type of hogan was not known archaeologically, but it bears a close resemblance to the "round hogan" described by the Franciscan Fathers (1910, pp. 332-333).

The form may be described as sub-rectangular, or rectangular with rounded corners. A parallel-sided entryway is located on the east side.



Fig. 10. Hogan 4, LA 4199, after excavation. Features visible include the edge of the floor, foundation stones, charred roof beams, and post holes. The entryway is toward the rear to the right of center.

At the northeast corner of the hogan is an unusual structure that may be termed a stepped-pit or antechamber.

The floor of the hogan consists of sterile soil dug deepest at the west end and shallower toward the entryway. From north to south, it is practically level, except that it dips slightly toward the central firepit. Numerous remains of roof supports were found within the structure. The major arrangement of these supports is a double row of three posts each, forming a rectangular six-post pattern. The entryway posts, four on each side, curve inward to form a constricted passage.

Thus, the vertical posts totaled sixteen. These posts would have made a flat roof possible, leaners forming true walls, rather than the typical conical forked-stick structure. Twenty fragments of burned juniper roof or wall beams were found lying on the floor. At the rear of the hogan, two small inclined post holes are dug at the rim of the floor excavation. These probably were for wall leaners. One detail of roof construction was preserved through the accident of burning. A roof beam, lying on the floor, had strips of juniper bark on top of it, at right angles to the axis of the beam. Possibly a bark mat formed part of the roof.

The fire pit is a simple excavation, oval in form, and dug into sterile soil. Lying immediately to the east of the pit was a sandstone slab. It

may have been set into the fire basin, or it may have served as a deflector. The pit is not lined.

Evidence of the entryway structure was preserved in the post pattern. The figure formed by the six posts departs from a true rectangle by being wider where it adjoins the hogan. The floor slopes gently from the original surface outside, to the level of the hogan floor within.

Two flat river cobbles on the floor near the juncture of the hogan and the entryway may be foundation stones mentioned in ethnographic accounts (Franciscan Fathers, 1910, pp. 332, 333) and also recorded archaeologically (Keur, 1941, pp. 29, 30). If this is true, the stone to the north side of the entrance may have been displaced. The stones were removed, and excavations conducted under them to determine if offerings were present. None were located.

An unusual attached pit is connected to the hogan by an extension of the hogan wall. Leading from the hogan is a short "passageway" down into the circular pit. In the center of the pit is a small depression, which may or may not be a post hole. The fill, within the pit, contained a number of fire-cracked rocks, suggesting use of the pit as a sweat lodge.

The vertical roof supports, together with the attached pit, make Hogan 4 a most unusual unit. It closely resembles a crude version of a

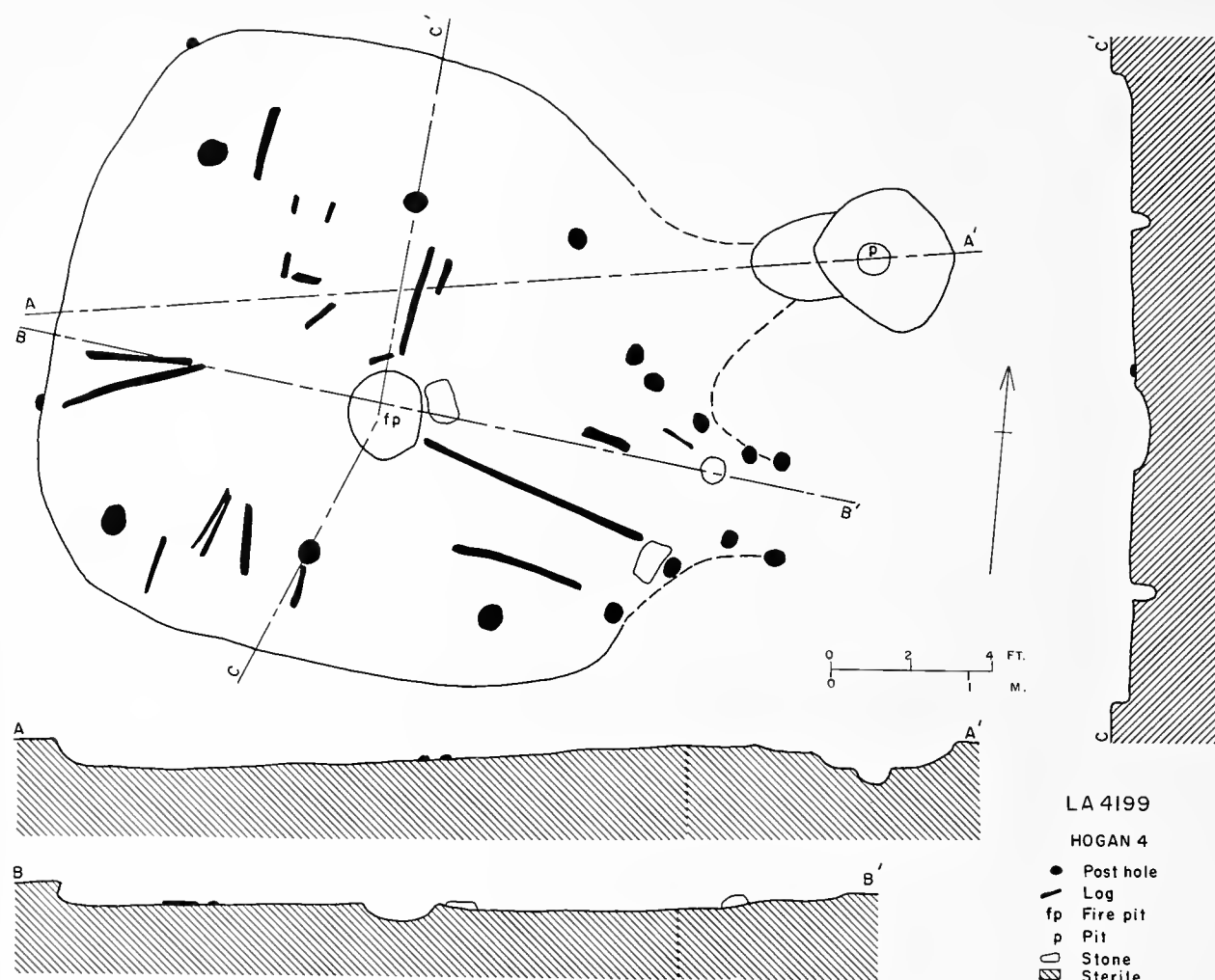


Fig. 11. Plan and profile of Hogan 4, LA 4199.

Plains earthlodge. Its primary use may have been ceremonial, and the sweat bath may have been used in healing rites.

Two crushed Dineta Utility jars in the fill and on the floor account for the high sherd count from this hogan.

Hogan 4 had been abandoned, burned, and filled with trash. After this, a use-surface was formed over the trash fill, contemporaneous with the use of the ramada. Although this indicates that Hogan 4 was constructed earlier than the ramada, the sherds found in this structure are clearly of the Gobernador Phase.

HOGAN 5 (Figs. 12, 13)

The remains are those of a single forked-stick hogan and what seems to be an entryway. It is oval in outline, the long axis running north-east-southwest. The floor, a shallow, dish-shaped depression, was dug into sterile soil, but neither plastered nor altered in any fashion.

Because the hogan did not burn, no definite superstructure supports were found. Three post holes in the floor may represent remains of the superstructure, but more likely the two smaller ones supported a loom. Their placement is similar to those in some modern hogans. The third is almost certainly one of the main posts of the hogan.

The small fire pit is dug into sterile soil and is unlined. Location of the pit differs from the majority of fire pits excavated at the site in that it is situated against the hogan wall instead of being centrally located.

A shallow depression, or pit, against the northern edge of the hogan, is dug into the sterile soil in a similar fashion to the fire pit. Its use cannot be determined.

Cultural material from within the structure is mixed, but the presence of sherds of the Gobernador Phase permits assigning this hogan to that time period.

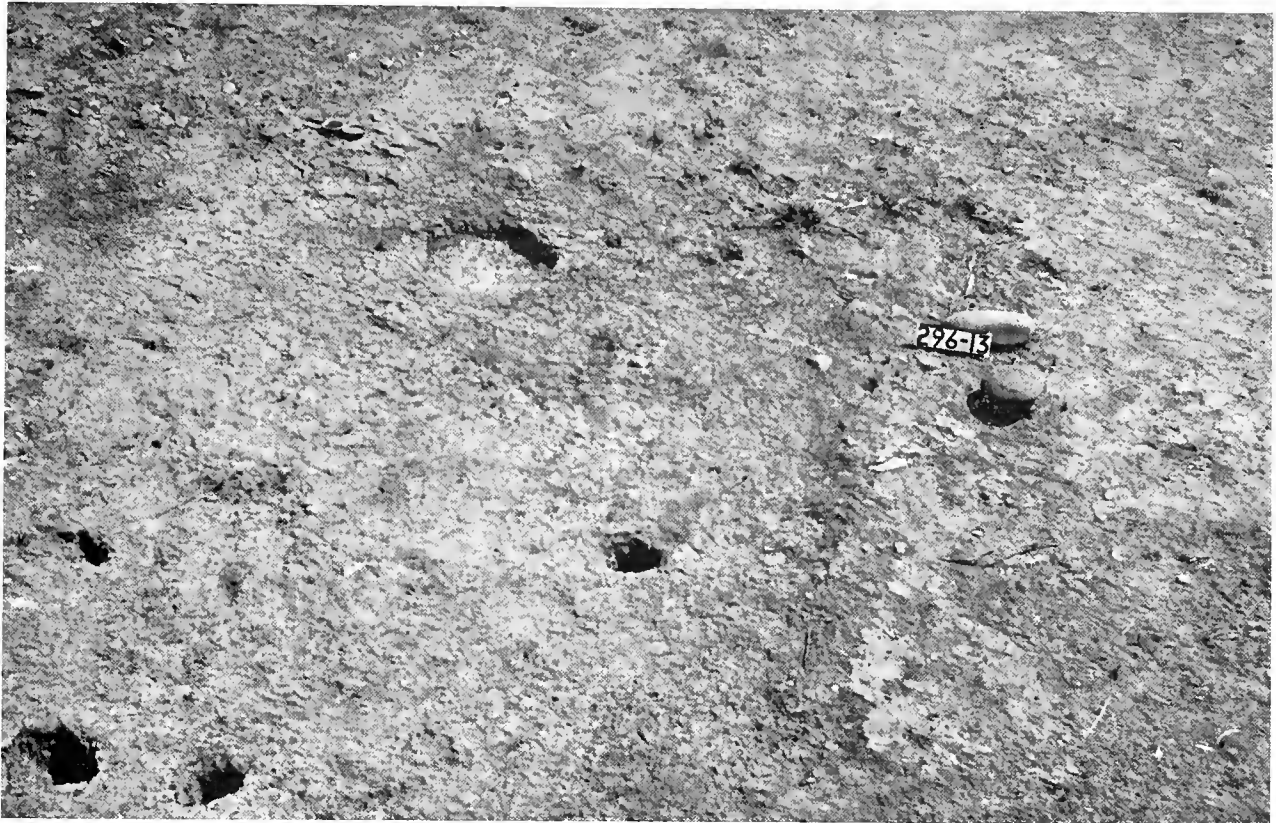


Fig. 12. Hogan 5, LA 4199, after excavation. The firepit is visible toward the rear. The two post holes on the right-hand side of the hogan were probably loom supports.

RAMADA (Fig. 4)

The remains of this structure are unique in Navajo archaeology. They consist of a row of twenty-five evenly spaced post holes, extending over a distance of 56.0 feet, plus a parallel row of six post holes, spaced 8.0 to 9.0 feet apart, located 12.0 feet to the east. Two auxiliary posts between these two rows suggest that the entire structure formed a parallelogram. Apparently, the posts supported a ramada. If so, the structure is noteworthy for its large size. The position of the ramada was such that it could afford shade and a work area for Hogans 2, 3, and 5. Within the area bounded by the post holes are a large fire basin and a number of large river cobbles. The latter show no evidence of use. A metate rest is situated about four feet to the east of the ramada.

To eliminate the possibility that this long line of post holes was a portion of a stockade associated with the nearby Piedra Phase pit house, trenches were laid out to the north and south of Broadside 2 along the line of the posts. In addition, each of the post holes was excavated and the cultural material analyzed.

The high proportion of Gobernador Phase sherds probably indicates that the structure dates

from that period. It does not seem reasonable that Piedra Phase post holes would have been standing open some 600 years later, to allow deposition of Navajo sherds within them. No wood, other than juniper, was identified at the time of excavation.

METATE REST 1 (Fig. 14)

This feature is constructed of river stones set into sterile soil. A large rectangular rock is surrounded by a ring of smaller cobbles, set on edge. In profile, the central stone is flat, the surrounding cobbles projecting above it and slanting outward. Apparently, a metate was placed on the central rock and the entire structure was used as a metate bin. The stones have been set 0.5 feet into the sterile soil, the central ones protruding 0.1 feet above the surface and the surrounding cobbles extending 0.3 to 0.4 feet above this.

METATE REST 2 (Fig. 4)

A small circular pit was dug, and a flat sandstone slab was placed within it. The pit was filled with trashy soil around the stone. There is a slight incline to the sandstone slab, the southwest corner being 0.1 feet lower than the northeast corner. It is assumed that a metate was placed there and that the stone acted as a base.

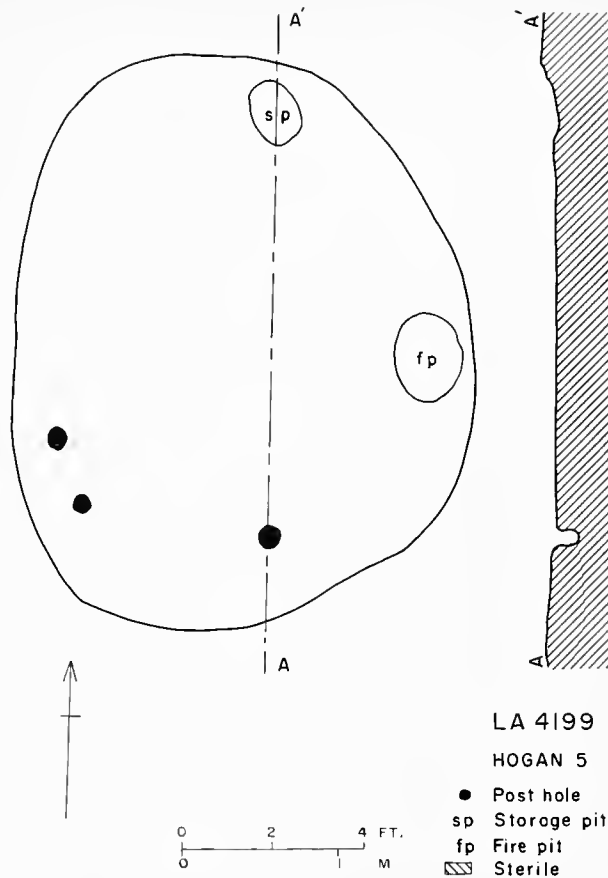


Fig. 13. Plan and profile of Hogan 5, LA 4199.



Fig. 14. Metate Rest 1, LA 4199, after excavation.

FIRE PIT 1 (Fig. 4)

An outdoor fire basin was dug into sterile soil. It was not lined and had almost straight walls. The interior of the basin has been fired a deep red. It is cut from the same surface as that of the ramada, and it is likely that the two were contemporaneous. No cultural material was discovered.

FIRE PIT 2 (Fig. 4)

A second outdoor fire basin is constructed in an identical manner to Fire Pit 1, but is smaller and oval in form. These pits could have been used for roasting, in the manner described by Hill, above, or they could have been used for open-flame cooking.

PITS (Fig. 4)

Two oval pits, excavated into sterile soil have been termed Pit A and Pit B. They were filled with trash but no evidence of burning or use was found. They contained no identifying cultural material. Dimensions are: Pit A - length, 2.0 feet; width, 1.25 feet; depth, 0.4 feet; Pit B - length, 1.75 feet; width, 1.25 feet; depth, 0.4 feet. The purpose of these pits could not be ascertained.

TEST (Fig. 4)

This designation has been assigned to an area of cultural debris in the back dirt of a pot hunter's excavation. This debris probably represents the remains of a forked-stick hogan, but excavation failed to reveal any evidence of a prehistoric structure. Therefore, this feature is not considered a cultural unit.

CAIRN (Fig. 4)

A circular pile of river cobbles, up to three cobbles deep, was found between Broad-sides 1 and 2. The cairn has a diameter of 11.0 feet, and cobbles are piled to an average height of 0.9 feet. A test trench across the cairn did not locate any cultural features underneath. The cobbles had been laid directly on the alluvial terrace silt which contains flecks of charcoal. Sterile soil was encountered at a depth of 1.3 feet. No use for the cairn is discernible. Because no cultural material was found, no specific date may be assigned to the cairn construction.

SURFACE STRUCTURE (Figs. 15 and 16).

An oval surface room has a dish-shaped floor slightly lower than the outside surface. A continuous single row of upright sandstone slabs and river cobbles is set around the edge of the floor excavation. These mark the only evidence of walls, which were probably jacal above the stones.

The floor is the unmodified surface of the original excavation. It curves up to the walls.

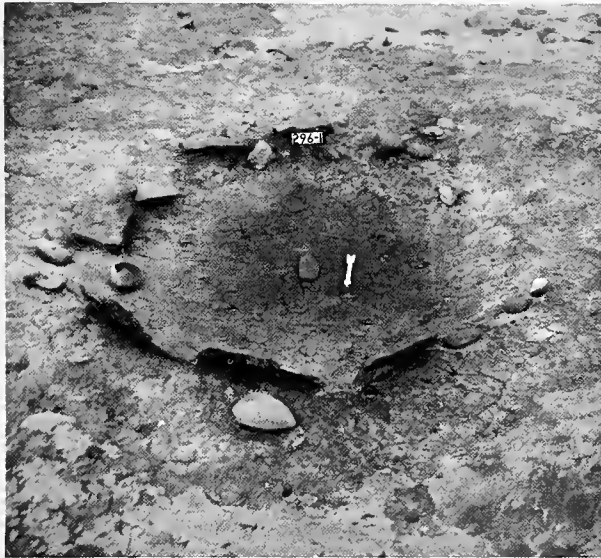


Fig. 15. Surface Structure, LA 4199. Vertical slabs outlining floor are clearly seen as are the floor contact artifacts, a Chapin Gray jar and a mano.

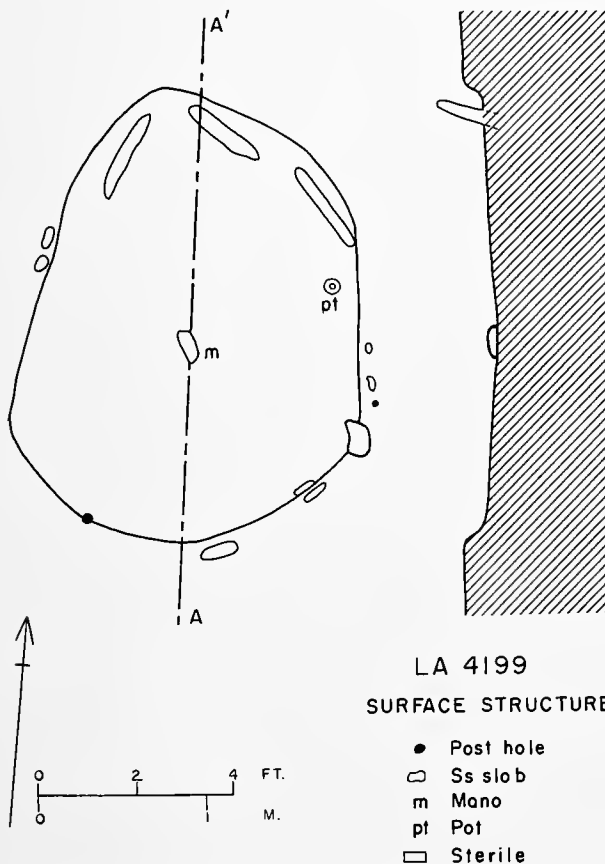


Fig. 16. Plan and profile of the Surface Structure, LA 4199.

The profile of the structure is a flattened hemisphere.

No definite post holes are apparent, nor other evidence of the nature of the roof. One possible post hole is present outside the structure. If this was a roof support, the perishable portion of the wall may have existed outside the row of vertical slabs.

A Chapin Gray vessel and a mano described below are identifiable as Rosa or Piedra Phase. They were found on the floor of the structure, in such a manner as to indicate that the structure is of similar date.

The absence of any interior features other than those described above limits the possible uses of this structure to a menstrual hut, a storage place or a seasonal habitation.

Comparative data for a structure of this type are rare. The closest similarity is to an oval surface structure excavated by A. E. Dittert, Jr., near the Navajo Dam (Dittert, 1958). He interpreted it as a seasonal habitation unit. In contrast with the above-mentioned structure, the one at LA 4199 does not possess definite post holes, a fire hearth, nor a bench. Therefore, it seems that it probably was not used for habitation.

Summary of Architecture

Except for the surface structure, a late Rosa or early Piedra Phase Unit, all features at this site that can be assigned to a cultural period may be assigned to the Gobernador Phase. The typical architectural form is the forked-stick hogan, of which four are similar and one strikingly aberrant. The excavation of areas between hogans has resulted in the discovery of features which indicate that outdoor milling and cooking activities were practiced by the Navajo.

Artifact Description

Analysis of material culture is greatly hampered because components of two different phases are represented at the site. Furthermore, approximately forty percent of all artifacts recovered from the site were surface finds. Some artifacts may be tentatively assigned to cultural periods, based primarily on knowledge of the types of artifacts present on single phase sites elsewhere in the Navajo Reservoir.

POTTERY

Pottery types from the site may be assigned to two cultural periods: A Puebloan occupation of late Rosa Phase or early Piedra Phase, and a Navajo occupation of Gobernador Phase. All pottery types listed in Table 2 have been described by Dittert (1961, pp. 152-154), except Frances Polychrome, formerly called Gobernador-Navajo Transitional Polychrome. This will be described in a forthcoming publication.

Specific new data on pottery forms and decoration are not revealed in the collections from the site. The majority of all sherds are plainwares, primarily Dineta Utility. Painted sherds are too small in size to contribute much to the study of design elements (Fig. 17). Three Dineta Utility partially-restorable vessels were obtained. These have not yet been restored, but exhibit the outflaring rim, wide mouth, and pointed bottom of the typical Dineta Utility storage jar.

One of these jars, which had been mended, has biconically drilled holes. This jar has deep brush marks on the exterior, probably made with a corn cob (Fig. 17 i). This surface treatment is very similar to that of pottery types of the Great Plains (Wedel, 1959, plates 80, 81, 87-90).

One restorable vessel from the earlier Puebloan occupation was found on the floor of the surface structure. This is a small, globular jar whose rim is missing. The pottery type has been identified as Chapin Gray, a trade ware from the Mesa Verde District. The vessel is 5.4 inches in diameter and approximately 5.5 inches in height. The bottom is relatively flat, and the rim is incurved and has no flare. Surfaces are rough with protruding igneous temper.

PROJECTILE POINTS (5)

Three specimens of projectile points are complete and two are fragmentary. Because no two are alike, they must be described individually. One specimen, of obsidian, is plano-convex in cross-section and triangular in outline (Dittert, *et al.*, Fig. 43 c). It is 1.0 inches long, 0.7 inches wide, weighs 0.05 ounces, and is probably of Navajo manufacture. The second specimen, of fine-grained quartzite, is worn smooth on both surfaces. It is slender, but thick, having corner-notches and an expanding rounded base (Dittert, *et al.*, Fig. 43 m). The length is 1.5 inches, the width is 0.55 inches, and it weighs 0.09 ounces. Stylistically, it conforms to types of the late Archaic period. A third specimen, of obsidian, is corner-notched and has a straight stem. It is 0.75 inches long, 0.5 inches wide, and weighs 0.02 ounces.

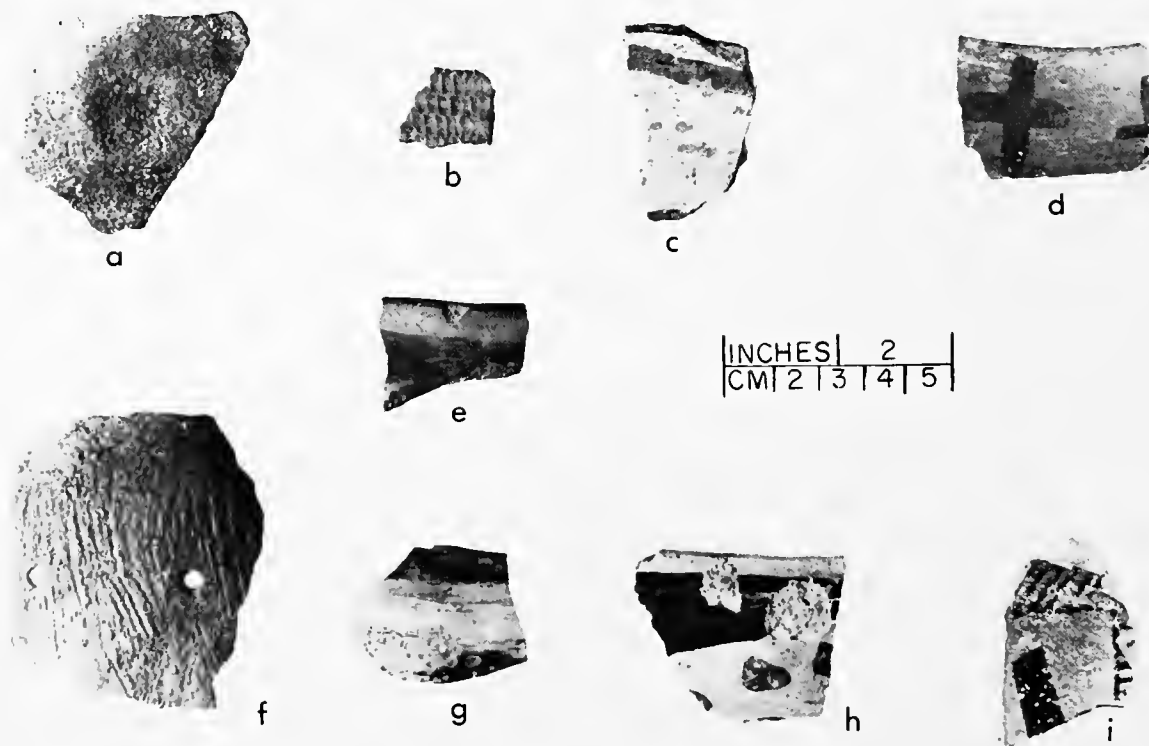


Fig. 17. Sherd types from LA 4199. a-b, Dineta Utility; c, basket impressed adobe; d-e, Gobernador Polychrome; f, Chapin Gray; g, Jemez B/W; h, Rio Grande glaze C; i, Zuni-Acoma glaze; j, North Plains B/R.

TABLE 2
POTTERY TYPES BY LOCATION, LA 4199, IN PERCENTAGES

Types	Surface	Broadside 1	Broadside 2	Test Trench 2	Hogan 1	Hogan 2		Hogan 3	Hogan 4	Hogan 5	Ramada	Oairs	Surface Structure		Total Sherds	Total Percent
						Fill	Pits						Fill	Floor		
Dinetah Utility Jemez B/W	45.3	39.9	68.9	50.0	66.6	99.1	100.0	100.0	96.6	75.9	66.6	100.0	92.2	-	911	83.4
Gobernador Polychrome Frances	7.5	-	-	50.0	14.4	-	-	-	-	-	16.6	-	-	-	22	2.0
Rio Grande glaze Ashiwi	14.6	-	3.9	-	-	-	-	-	-	-	-	-	-	-	35	3.2
Polychrome Zuni-Acoma glaze	-	-	-	-	-	0.3	-	-	-	3.4	-	-	-	-	1	0.1
Rosa Gray	10.2	6.7	13.7	-	-	-	-	-	2.3	3.4	11.0	-	-	-	40	3.6
Rosa B/W (glaze)	1.3	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0.2
Piedra B/W	4.0	-	-	-	-	-	-	-	0.2	-	-	-	-	-	10	0.8
Chapin Gray	15.1	33.3	13.7	-	20.0	0.3	-	-	0.7	6.9	-	-	7.8	-	55	5.0
Twin Trees North Plains B/R	-	6.7	-	-	-	-	-	-	-	-	-	-	-	-	1	0.1
Unidentified Plainware	1.3	6.7	-	-	-	-	-	-	-	3.4	-	-	-	-	5	0.4
	-	6.7	-	-	-	-	-	-	-	-	5.5	-	-	100.0	4	0.3
	-	-	-	-	-	-	-	-	-	6.9	-	-	-	-	2	0.2
	-	-	-	-	-	0.3	-	-	-	-	-	-	-	-	1	0.1
	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0.1
Total Sherds	225	15	29	2	15	330	1	1	386	29	18	1	38	1	1090	99.5
Total Percent	99.8	100.0	100.2	100.0	101.0	100.0	100.0	100.0	99.8	99.9	99.7	100.0	100.0	100.0	-	-

TABLE 3
ARTIFACTS BY LOCATION, LA 4199

Artifacts	Surface	Broadside 1	Broadside 2	Metate 1	Hogan 1	Hogan 2		Hogan 3	Hogan 4	Hogan 5	Ramada	Cairn	Surface Structure		Total Specimens
						Flint	Pits						Flint	Flint	
Projectile Points	2	-	-	-	-	-	-	1	-	1	-	1	-	-	5
Blades	-	-	-	-	1	-	-	-	1	-	-	-	1	-	3
Drills	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Flake knives	7	-	1	-	1	-	-	-	1	-	-	-	-	-	10
Scrapers															
Side	2	-	1	-	-	-	-	-	-	-	1	-	1	-	5
Hollow edge	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2
End	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Thumb nail	-	1	-	-	-	-	-	1	-	-	-	-	1	-	3
Flake	2	1	-	-	-	-	1	-	2	-	-	-	-	-	6
Ground-Edge knives															
Saw	-	-	-	-	-	-	1	-	1	-	-	-	-	-	2
	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
Gravers	2	-	-	-	-	-	-	-	-	-	1	-	-	-	3
Hammers	-	1	1	-	-	-	-	-	-	-	-	-	-	-	2
Choppers	1	1	-	-	-	-	-	-	-	-	-	-	-	-	2
Polishers	-	1	-	-	-	-	1	-	-	-	-	-	-	-	2
Shaft Straightener	1	-	-	-	-	-	1	-	-	-	-	-	-	-	2
Manos - two hand, slab															
-two hand, trough	-	1	-	1	-	-	-	-	-	-	-	-	1	1	4
Grinding palettes	-	1	1	-	-	-	-	-	-	-	-	-	-	-	2
Metate (Digging tool)	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Bone awl	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Total Specimens	22	7	4	1	2	1	5	2	6	1	3	2	4	1	61

The remaining two points are fragmentary. One consists of the basal portion of a small side-notched point made of Pedernal chert. The other appears to have been oval in outline and to have had a round base. It was made of petrified wood.

BLADES (3)

All specimens conform to the category described by Dittert *et al* (1961, p. 172), being bifacially flaked, unstemmed, and leaf shaped. Materials used were Pedernal chert and fine grained quartzite.

KNIVES (10)

There is considerable variation among these tools, consisting as they do of primary flakes that have been bifacially chipped to a cutting edge. The chipping was intentional, but the shapes are random.

SCRAPERS

Side (5)

Primary flakes, plano-convex in cross-section, were unifacially chipped to a straight edge. Materials were limited to chert, obsidian, and jasper.

Hollow-edge (2)

Primary flakes were unifacially chipped to produce a semi-circular, concave scraping edge. They are made of basalt and of obsidian (Dittert, *et al*, Fig. 47 a).

End (1)

This tool is plano-convex in cross-section and oval in outline, having a 70° chipped cutting edge at one end. It has been made from a quartzite core, 3.2 inches long, 1.8 inches wide, and 1.3 inches thick.

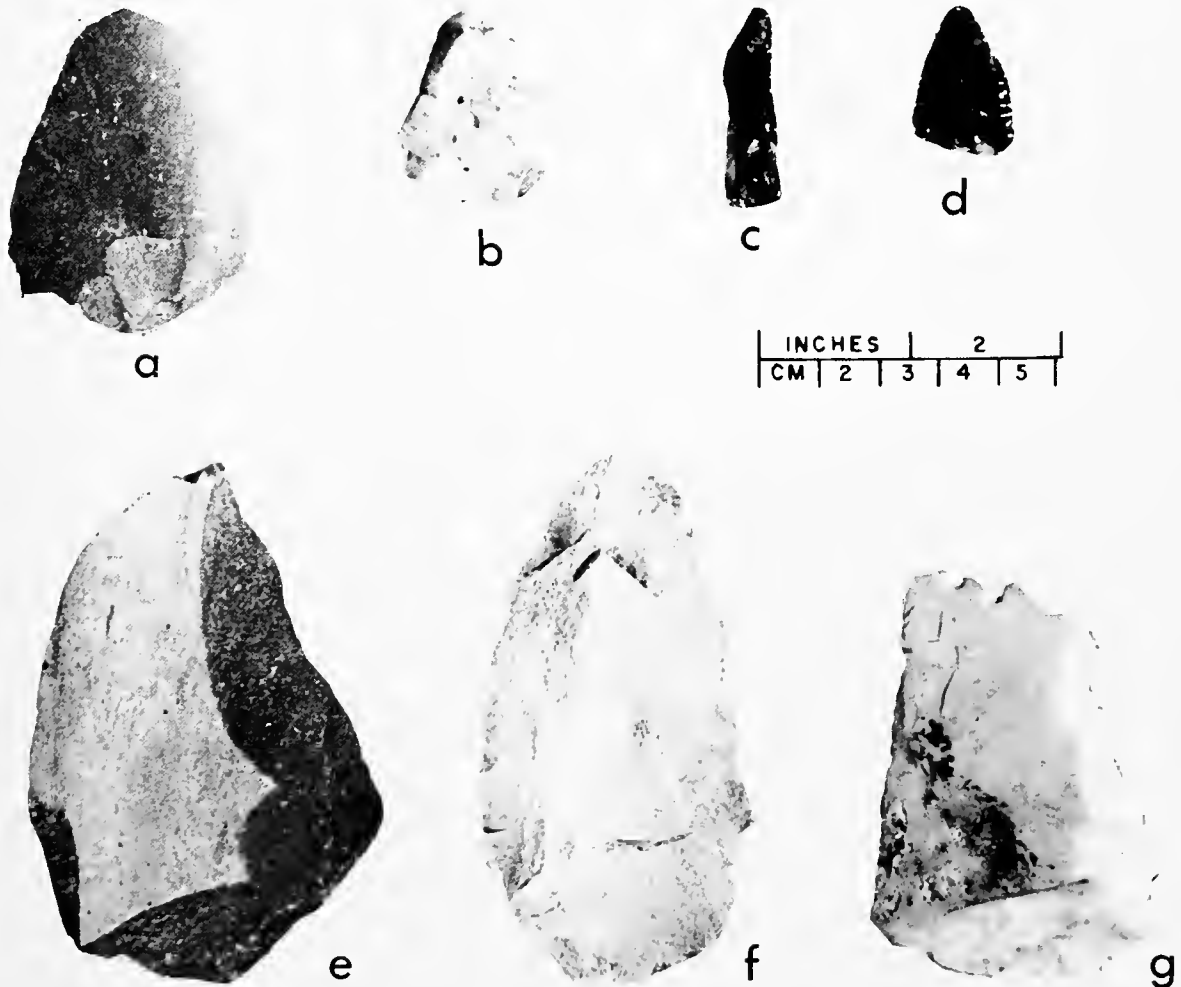


Fig. 18a. Chipped and flaked stone artifacts, LA 4199. a-b, side scrapers; c, flake knife; d, projectile point; e, ground-edge knife; f, blade; and g, saw.

Thumbnail Scrapers (3)

Small thin flakes of Pedernal chert that approximate the size of a thumbnail exhibit use along a convex edge. Modification of the edge is largely the result of use instead of intentional re-touching.

Flake Scrapers (6)

Primary flakes with fairly regular edges which had little or no prior modification were used for scraping. The apparently chipped edges are more the result of use than preparation. All specimens are small and thin. Glassy materials such as Pedernal chert and obsidian were used exclusively.

GROUND-EDGE KNIVES (2)

Two large basalt flakes show grinding and some polish along the convex edge. In cross-section, they are plano-convex with cutting edges of 40°.

SAW (1)

The long side of this sub-rectangular tool is bifacially chipped to a straight, sharp edge of about a 35° cutting angle. The short side is deeply notched, producing three sharp saw teeth. It is made of Pedernal chert.

GRAVERS (3)

Primary flakes with a sharp corner or a natural point were retouched slightly to produce a point suitable for graving. Gray chert and petrified wood were used (Dittert, *et al.*, p. 181).

DRILLS (3)

Flakes of Pedernal chert and petrified wood were chipped to tapering bits that are triangular in cross-section. The drills have neither stem nor flange, and are quite carelessly made. Lengths are 1.0 and 1.3 inches, tapering from a point to maximum diameters of 0.5 and 0.65 inches.

HAMMERS (2)

Rounded, river-worn cobbles of basalt and quartzite show extensive use as hammers. Battering marks are on rounded ends as well as more sharply rounded edges. They weigh 21.0 and 23.2 ounces, respectively.

CHOPPERS (2)

Two distinct forms of choppers are represented. One of these is a subspherical cobble of quartzite roughly flaked to a uniface cutting edge of 100°. It weighs 7.9 ounces. The other style is a flat thin river-worn cobble of line-grained limestone. It has a uniface cutting edge of about 60° and weighs 11.8 ounces.

POLISHERS (2)

Two river-worn pebbles show evidence of use as polishers, probably of adobe floors or plaster. They are much larger than pottery polishers.

SHAFT TOOL (2)

One specimen is ovoid and has a groove pecked along one long axis. It has been used only slightly, for polishing streaks are weakly developed within the groove. The object has been pecked out of tuff, and no effort was made to smooth out the pecking manufacture scars. It appears to have been an abradar.

The second specimen is similar in size and placement of the groove, but is of a fine grained igneous rock. It is smoothed all over and symmetrically finished. The polish within the groove indicates that it was used for straightening shafts by heat (Dittert *et al.*, Fig. 54 c)

MANOS (5)

Four specimens are of the type used on slab metates, and all are of sandstone. Longitudinally, they have an airfoil section, and the outlines vary from oval to subrectangular. Lengths vary from 4.3 inches to 4.8 inches. One specimen is 11.8 inches wide, but is apparently oversized. The other three are broken.

A single specimen was used in a trough metate. It is 4.2 inches long and 7.9 inches wide. Its shape and its presence on the floor of the Rosa or Piedra Phase house preclude its being of Navajo origin.

METATE (1)

One specimen of a slab metate was broken and subsequently roughly flaked to an edge at one end. It may have seen final use as a two-hand digging tool. It is made of sandstone, is 11.9 inches long, 5.3 inches wide, and 2.6 inches thick.

GRINDING PALETTES (2)

One specimen is of tabular sandstone which has one surface ground flat. Numerous pecking scars on the surface indicate sharpening as in the case of metates. It is circular in outline and has an average diameter of six inches. Grinding was apparently done in a reciprocal motion.

Another specimen is of basic volcanic rock, in the form of a large river-worn cobble. Both surfaces have been ground into smooth basins. The concavities are too small to be called metate basins, but could have seen use in seed or paint grinding. Overall size is 9.0 by 7.8 inches. The basins are similar and average 5.5 inches long, 3.5 inches wide and 0.5 inches deep.

BONE AWLS (1)

A single awl of simple construction is the only example. It is an evenly tapered tool cut from an animal long bone. The articulating end of the bone is ground smooth and the split edges are ground to a rounded cross-section. The awl has a straight tip, slightly polished.

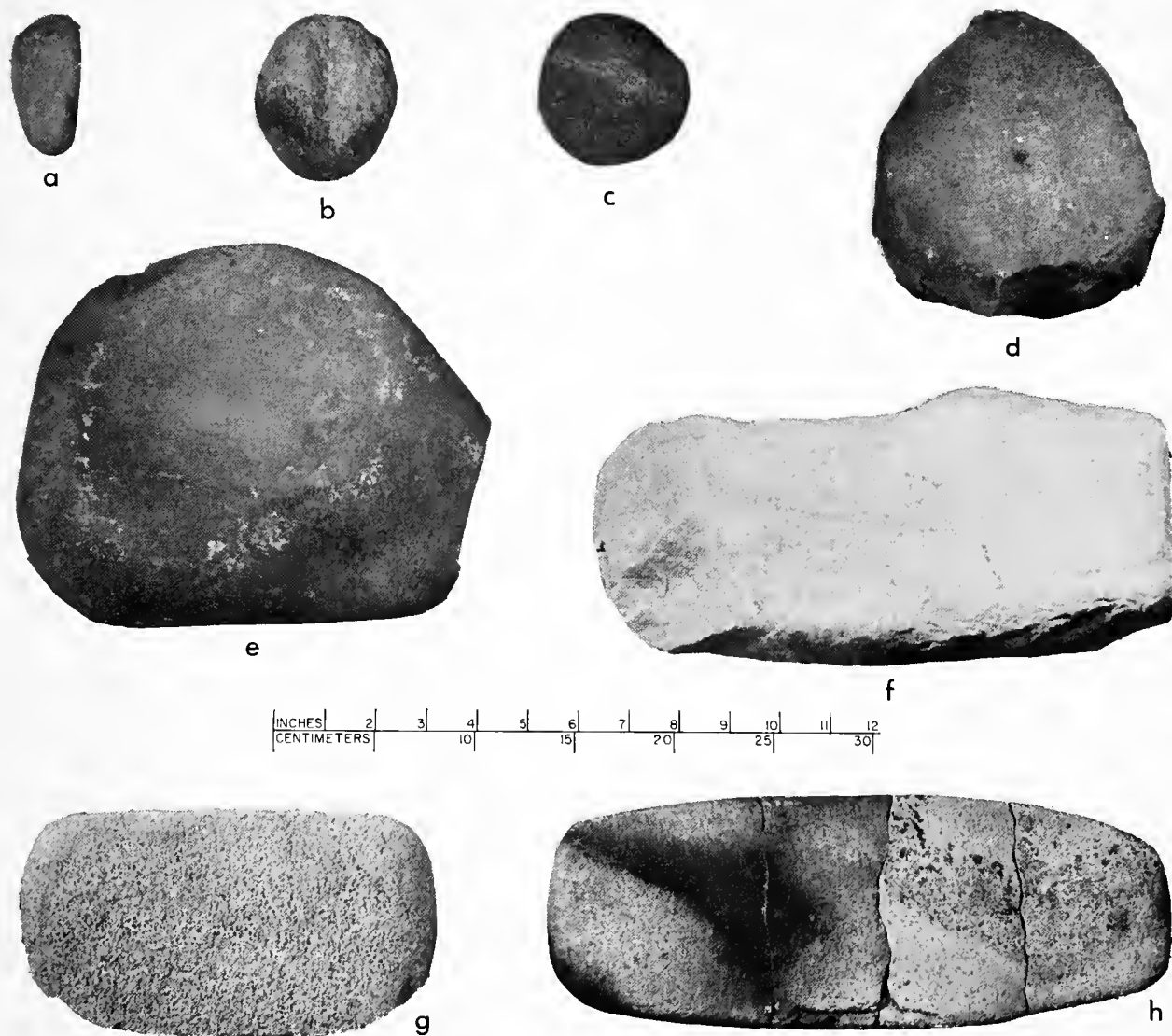


Fig. 18b. Ground stone artifacts, LA 4199. a,c, polishers; b, shaft tool; d,e, grinding palettes; f, metate re-used as a digging tool; g, two-hand, trough mano; and h, two-hand slab mano.

STONE

The total sample of stone (Table 4) from the site consists of 380 specimens, of which 36.1 percent is quartzite, 20.6 percent cherts, 11.5 percent fine-grained igneous rocks, 10.9 percent obsidian, and 7.3 percent chalcedony. Other varieties of stone occur in minor quantities among the fifty-six stone artifacts recovered. Despite the mixed sample, it is clear that greater emphasis was placed on fine-grained chipping materials -- such as obsidian, cherts, and chalcedony -- during the Gobernador Phase than during the earlier Pueblo Period. The observation is based primarily on a comparison with the stone utilized at LA 4408. Although all of the cherts could not be identified, the majority are from the Pedernal district.

Artifact Discussion

Even after the Navajo material was separated from that of the Rosa or Piedra Phase, a heterogeneous collection remained. The pottery is dominated by local plainwares of Navajo manufacture, but impressive numbers of Pueblo potsherds are distributed about the site. The Gobernador Polychrome and the Rio Grande glazes are strong indicators of the Gobernador Phase, but the first appearance of Jemez Black-on-White may pre-date these types.

TABLE 4
STONE TYPES BY LOCATION, LA 4199

Type	Hogans		Surface Structure		Surface	
	No.	Used	No.	Used	No.	Used
Quartzite	78	18	5	-	54	6
Quartzitic Sandstone	11	5	2	2	-	-
Sandstone	5	-	-	-	1	1
Limestone	3	-	-	-	-	-
Igneous	28	6	3	-	13	3
Obsidian	10	4	-	-	32	14
Jasper	1	-	-	-	14	3
Chert	14	6	2	2	62	22
Chalcedony	2	1	2	1	24	-
Petrified Wood	-	-	-	-	4	3
Tuff	1	1	-	-	-	-
Limonite	1	-	-	-	7	-
Calcite	1	-	-	-	-	-
Total	155	41	14	5	211	52

Artifacts of chipped stone are extremely varied. Five styles of projectile points, several kinds of knives, scrapers and other chipped tools all show mixed cultural expressions. There is little doubt that numbers of these artifacts were picked up from the surfaces of older sites.

Far more uniformity occurs in the heavier stone tools, all of which may have been made locally. Manos and hammerstones are more consistent in materials and techniques of manufacture as well as size and shape.

No evidence exists of activities other than those related to obtaining and preparing food, clothing, and shelter. Objects related to amusement, art, or decoration are entirely lacking except

for one fragment of a painted pot that possibly was made locally.

Apparently, considerable activity was expended in working wood, fibers such as yucca, and hides, though these objects did not survive. Most of the tools are designed for, or show evidence of, cutting, scraping, and polishing of materials softer than stone.

Bone tools, scraps, or worked bone are so poorly represented that the use of bone can be considered a weakly developed trait.

Reconstruction of Events

The occupation represented within Broadside 1 is fairly simple to interpret. Initially, a Rosa or Piedra Phase surface structure existed. After this was abandoned, a hiatus of 600-700 years occurred, after which Hogan 1 and Metate Rest 1 were constructed, during the Gobernador Phase. The two isolated pits cannot be accurately dated because no artifacts were found in the fill. However, proximity of the pits to Metate Rest 1 could indicate a possible contemporaneity.

All evidence of the occupation within Broadside 2 dates from the Gobernador Phase. The sequence of events appears to have been: construction of Hogan 4, and possibly Hogan 5; abandonment of Hogan 4, which then burned and was filled with trash. Then a use-surface was formed over the site. From this surface were cut Hogans 2 and 3, and the ramada, all of which may have been more or less contemporaneous. From this same surface were cut Fire Pits 1 and 2, and Metate Rest 2, which are auxiliary features to the hogans. The entire range of the occupation of Broadside 2, according to the pottery, dates approximately from A.D. 1700 to 1750.

The time of occupation of specific Gobernador Phase units in Broadside 1 cannot be correlated with specific units within Broadside 2. However, all of the Navajo occupation was more or less contemporaneous.

Discussion

LA 4199 was excavated to learn more about the Gobernador Phase occupation of the upper San Juan River Valley. This aspect of the work has been successful, bringing to light as it has numerous inter-hogan features. The site was probably occupied for about half a century, during which several hogans were occupied at any given time. The site may have been periodically abandoned because of travel to seasonal wild food harvests.

One of the more important aspects of the site is that it is the farthest north of any Gobernador Phase site excavated to date, and thus is farther away from Puebloan influence. This probably explains why the site lacks masonry,

slab-lined bins, European trade goods, and other items indicating the Puebloan contact, which is so apparent in the Gobernador District to the southeast (Keur, 1944).

Occurrences of importance are the foundation stones, the only ones found to date in the Navajo Reservoir; the loom posts (?); the presence of a possible ceremonial hogan; and a number of contemporaneous hogans, some having exterior entryways. Orientations of the two entryways are to the northeast and east.

The occurrences and non-occurrences discussed above reflect a considerable diversity in Navajo culture during the Gobernador Phase, almost certainly due, in large part, to geographic factors.

CHAPTER III

THE LA JARA AND FRANCES SECTIONS

The basic survey had revealed that the entire La Jara and Frances Sections of the Reservoir were rich in Navajo sites. Accordingly, sites were selected for study on the basis of their potential for clarifying cultural complexes and their imminent danger of being flooded. Excavations carried out during September, 1959, include work at LA 4312, LA 4314, and LA 4411 (Fig. 19). The latter is a rock shelter of indeterminate Navajo culture, of

interest because of the perishable material present. LA 4331 was excavated during July, 1960.

Navajo sites in the Frances Section include many excavated in the 1957 and 1958 seasons under the direction of A. E. Dittert, Jr. These sites will be described in a future publication. A single site, LA 4072, studied under Dittert's direction will be described in this chapter.

SETTING

The San Juan River valley in the La Jara and Frances Sections of the Navajo Reservoir District has the fol-

lowing general characteristics: It has a topography typical of the "Junction Land Form" (Dittert, *et al*, 1961, p.

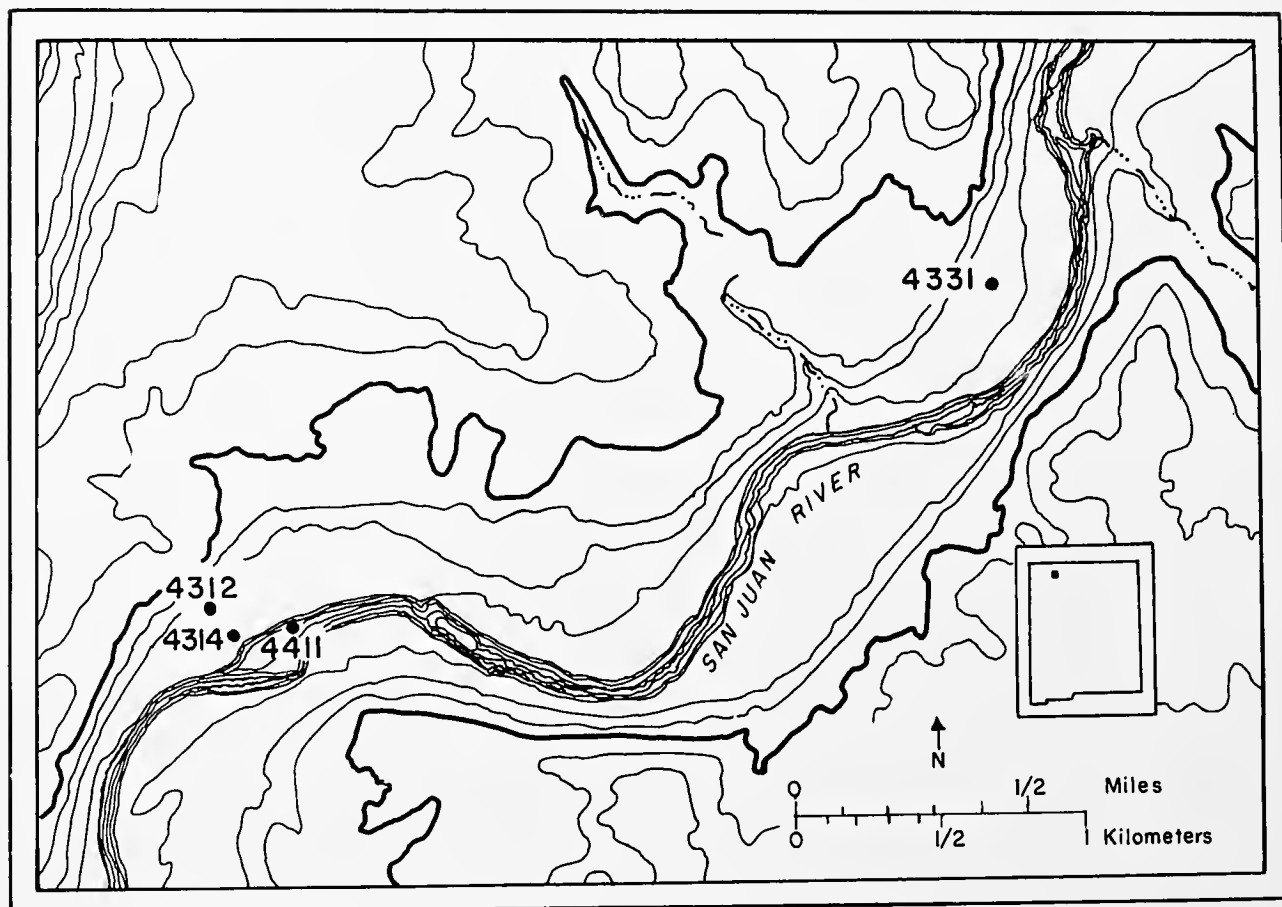


Fig. 19. Sites excavated in the La Jara Section, LA 4411, 4312, 4314, and 4331.

20), that is, a deeply dissected canyon about 400 feet in depth, cut into an area of flat-lying sandstone mesas. Within the canyon, erosion has resulted in the formation of a series of stepped gravel-capped benches. In a profile from the river to the mesa top, the topography in La Jara Section includes a low lying narrow strip of current flood plain consisting of alluvium interspersed with gravel bars, narrow remnants of the recent alluvial terrace standing to a height of about fifteen feet, and a sandstone cliff about seventy-five feet in height surmounted by a gravel-capped bench -- the first Pleistocene bench.

Above this is a talus slope from which the sandstone canyon wall normally rises to the mesa top. The first Pleistocene bench is the largest level land feature within the canyon, and was the area most utilized by the prehistoric inhabitants. Profiles elsewhere in the

Frances Section reveal large remnants of the second and third Pleistocene terraces.

Construction materials, including pinyon and juniper, adobe, sandstone, and river cobbles, are all present on the first Pleistocene bench immediately adjacent to the sites. Other woods suitable for tools -- such as rabbit brush, cottonwood, salt bush, and sagebrush -- grow on the Recent alluvial terrace. Arable land is primarily confined to the Recent terrace.

Water for farming would have been supplied from the riverine water table and from surface runoff. A ready source of tool stone, including cherts, chalcedonies, quartzites, and fine-grained igneous rocks, is the river gravel. Food animals include mule deer, jackrabbits, cottontail rabbits, and fish.

LA 4411

LA 4411 consists of two contiguous rock shelters situated in the sandstone cliff face below the first Pleistocene bench, on the north bank of the San Juan River, in San Juan County, New Mexico. The mouths of the caves face about 20 degrees east of south. Differential weathering of a shale lens within the sandstone bedrock was responsible for the formation of the shelters. The cliff overhangs have been designated Shelters 1 and 2 (Fig. 21). Total excavation time was eight man days.



Fig. 20. View of LA 4411.

The fill within these two shelters was extremely shallow, averaging 0.3 feet in depth, and initial testing was performed to determine if cultural material was present. Because testing yielded artifacts and remains of cultivated plants, it was deemed worthwhile to excavate and sift the remainder of the fill. Due to the shallow nature of the refuse, no vertical separation was possible, and all material was studied as a unit. The fill in both shelters was similar, consisting of windblown silt, sandstone roof fall, pack rat dung, corn cobs, and burned sticks.

In front of both shelters is a sandstone shelf, one hundred feet in length and twelve feet in width. It would form an excellent place for outdoor living because the cliff overhang aids in protecting the shelf area from the elements.

The nature of the cultural material suggests that the shelters were used for both habitation and storage, although the floor slopes considerably and may have made habitation difficult. The fact that both shelters are coated with gypsum crystals suggests that a wet period, including a seep spring, occurred prior to the occupation.

The Shelters

Shelter 1 is the westernmost and the larger of the two shelters (Figs. 20, 21, left). The floors and roofs of both are sandstone bedrock, and

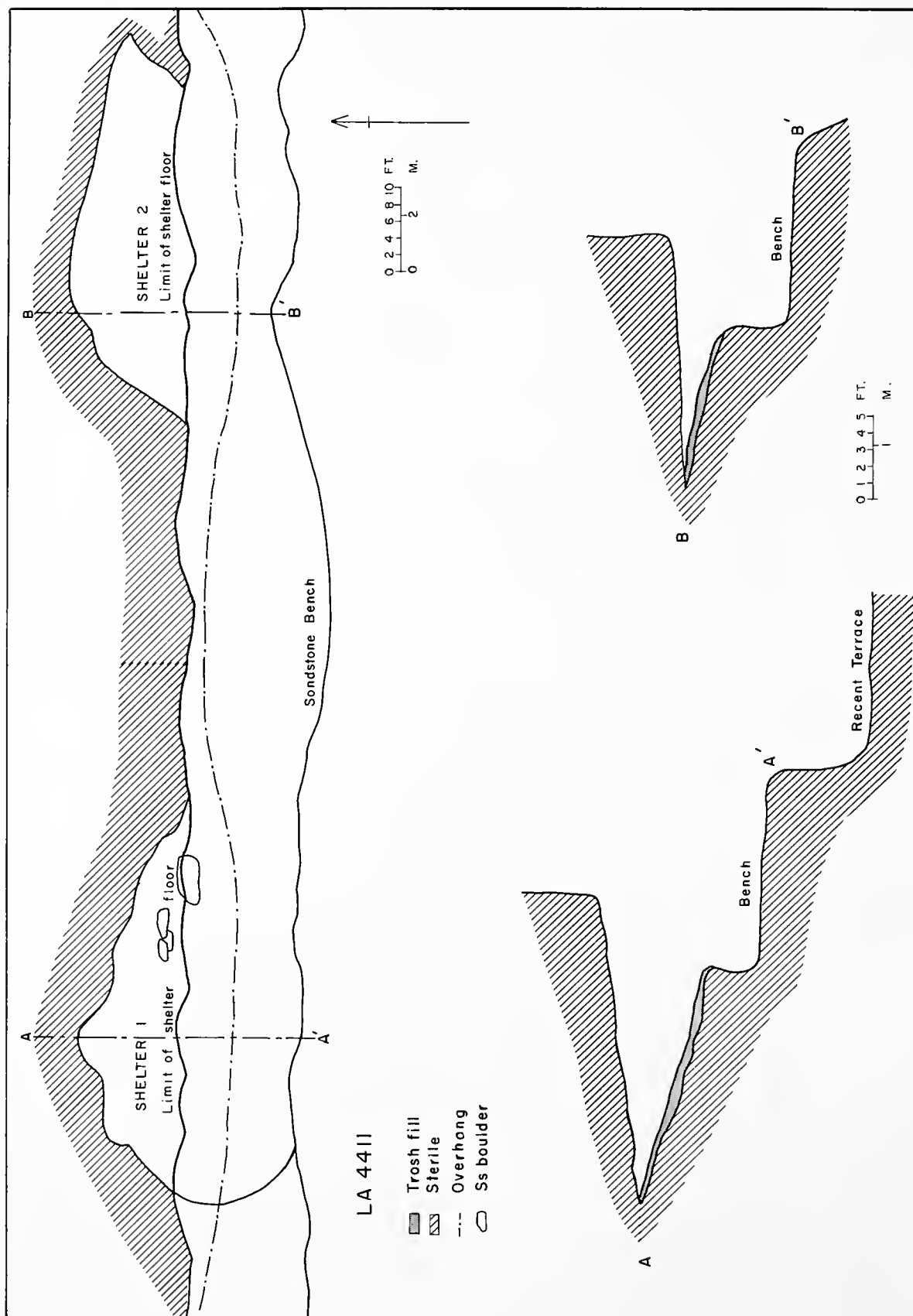


Fig. 21. Plan and profiles of LA 4411. Scale of profiles is twice that of the plan.

no evidence exists of interior structures. Because of the shallower nature of Shelter 2, it was less suitable for habitation than the other.

Artifact Description

Artifacts of stone or pottery were not recovered at the site. Therefore, exact identification of the cultural affiliation is difficult. Perishable artifacts were present, and it is hoped that these non-distinctive specimens may be assigned to a cultural period at a later date. Because additional Navajo sites are to be studied, further information may be forthcoming.

The prayer stick is unusual. It is an unmodified twig to which a small segment of corn cob is secured with a yucca thong. The stick is 11.9 inches long and 0.2 inches in diameter. Five turns of yucca are around the stick and the cob fragment (Fig. 22). Association with Navajo

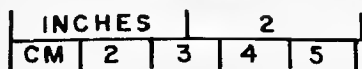


Fig. 22. Prayer Stick, LA 4411. A segment of a corn cob is tied to a twig with a yucca thong.

culture is suggested by a distinctive twilled, cupped heel, yucca sandal similar to those recovered at LA 4298, and described in that section. The conclusive association of the unusual sandals with Navajo culture at LA 4298 tends to place LA 4411 within the Navajo period.

Unmodified stone flakes were obtained from the site, though not in abundance. All specimens could have been obtained in the local gravels, and none show use.

LA 4314

The site is of interest because of the presence of a sandstone masonry "pueblito" of the type described by Keur (1944, p. 75). Structures of this nature are rare in the Navajo Reservoir, only three having been located to date. The site is of additional interest because of its unusual situation atop a large sandstone talus boulder.

Situation

LA 4314 is in San Juan County, New Mexico, on the north side of the San Juan River, at a distance of about 600 feet from the river (Fig. 19).

TABLE 5

STONE TYPES BY LOCATION, LA 4411

TYPES	SURFACE	SHELTER 1
Quartzite	3	1
Shale	1	-
Limestone	-	3
Igneous	-	1
Total Specimens	4	5

TABLE 6

ARTIFACTS BY LOCATION, LA 4411

ARTIFACTS	SHELTER 1	SHELTER 2
Prayer stick	1	-
Wrapped stick	1	-
Sandal fragment	1	-
Knotted yucca	-	2
Cut yucca	Many	Many
Total Specimens	3+	2+

The boulder is on the first Pleistocene terrace about one hundred feet in front of the major portion of the talus slope. Surrounding the talus boulder is a growth of sagebrush, junipers, and a few pinyon trees.

Description

Cultural materials include the masonry structure on top of the boulder, wall fall from the structure lying at the base of the boulder, and scattered sherds and chips lying on the terrace within a radius of seventy five feet.

Excavation of the Pueblito consisted of cleaning out the fill within the walls. Because of the

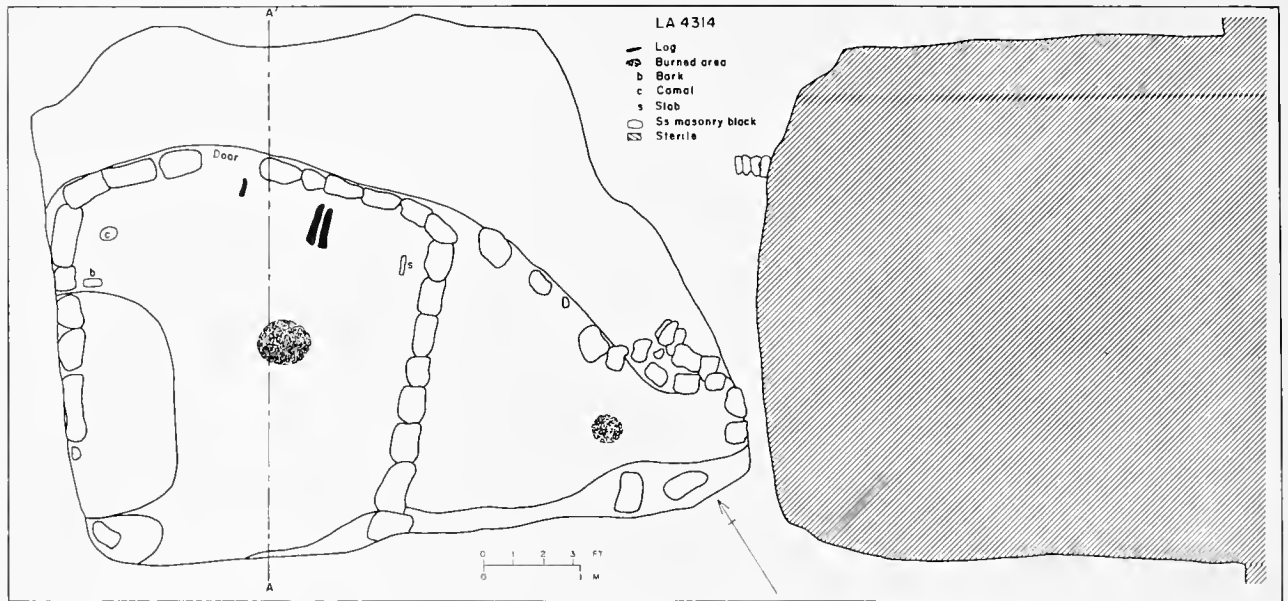


Fig. 23. Plan and profiles of LA 4314.

shallow nature of the fill, no attempt was made to segregate levels. After the fill had been removed, the unit was mapped and photographed. Total excavation time was four man-days.

Architecture

Two masonry rooms are on the surface of the rock. Because an attempt was made to utilize all of the available space, the shape of the



Fig. 24. View of LA 4314.

rooms followed the configuration of the surface. Walls are built out to the edges of the boulder, the west room being rectangular in shape and the east room triangular.

The walls are made of large rectangular unshaped sandstone slabs set in adobe mortar (Fig. 23). They are one stone in width, unplastered, and four to five courses of maximum height remain. The average size of the slabs is 1.8 feet by 1.0 feet by 0.3 feet. Most of the adobe mortar has eroded and the entire south wall has fallen from the boulder. The unplastered floor consists of the bedrock top of the boulder, earth in uneven spots creating a level packed surface.

Likely, the three juniper beams found lying on the floor in a north-south orientation were originally horizontal roof supports laid from wall to wall. No vertical posts were located. Bark found on the floor may have been placed on the beams at right angles to form a covering (Fig. 23).

Two burned areas on the floor are apparently fire areas which have oxidized the sandstone bedrock to a red color. One is in each room. No evidence exists of prepared hearths, but the burned areas are more or less centrally located.

The north wall of the west room has an opening two feet wide which extends to floor level.

This probably represents the doorway because that side of the boulder has a shelf sloping to the top, affording the easiest access.

The fill was relatively sterile, containing only a few sherds and flecks of charcoal in the wind-blown silts, plus adobe washed from the walls. The only artifact, a comal, was found on the floor.

Artifact Description

The majority of the artifacts from LA 4314 are from the surface survey. Pottery is distinctively Gobernador Phase. Dineta Utility is the dominant type, but the sherds of Frances Polychrome suggest that the site was occupied late in the Gobernador Phase, apparently shortly before the Navajo abandoned the Reservoir District.

The chopper-polisher is a rounded river cobble roughly flaked to a chopping edge. One of its faces is smoothed from use as a polishing tool. It was possibly used to finish floor plaster.

The hammer is similar to those described from LA 4199.

Unmodified stone flakes are not abundant at the site. All of the stone types occur in the local gravels. Only three of the waste flakes show evidence of having been used.

Other artifacts from the excavations do not amplify the data from the basic survey, with the notable exception of the comal (Fig. 25). The comal is a distinctively Pueblo artifact sometimes referred to as a "Piki griddle." The upper surface of this fine-grained sandstone slab is highly polished, blackened, and saturated with lats. Approximately half of the comal is missing, but the remaining part shows careful percussion trimming of the original edges. The former size was roughly twelve by eighteen inches, and one inch thick.

Discussion

The overall character of the site suggests that it was selected as a relatively inaccessible and defensive position which afforded a good view up and down the valley. The ruin did not burn, but was abandoned and gradually collapsed, most of the walls falling out and off the boulder. Although the period of occupation is clearly late Gobernador Phase, it cannot be determined how long the site was occupied.

TABLE 7

POTTERY TYPES BY LOCATION, LA 4314, IN PERCENTAGES

Types	Surface	Pueblito
Dineta Utility	35.4	100.0
Gobernador Polychrome	25.0	-
Frances Polychrome	4.1	-
Late Rio Grande glaze	35.4	-
Total Percent	99.9	100.0
Total	48	55

TABLE 8

STONE TYPES BY LOCATION, LA 4314

Types	Surface	Pueblito
Quartzite	1	-
Sandstone	-	1
Obsidian	1	-
Igneous	5	-
Chert	2	-
Total	9	1

TABLE 9

ARTIFACTS BY LOCATION, LA 4314

Artifact	Surface	Pueblito
Chopper-Polisher	1	-
Hammer	1	-
Comal	-	1
Total	2	1



Fig. 25. Comal from LA 4314.

LA 4312

Small waste flakes obtained during the preliminary survey led to the belief that the site might yield additional information about tool manufacture during the Gobernador Phase.

The site is on the north side of the San Juan River, about one hundred and fifty feet west of LA 4314 and in an identical situation.

Description

Surface indications were three charcoal-stained areas at which sherds and flakes eroded. These areas were considered to be the remains of forked-stick hogans. The area covered by trash is approximately 100 by 200 feet, much of the scattering being due to erosion. The blackened areas are more restricted in size, being about fifteen feet in diameter.

Excavations were limited to testing, specifically to determine if information could be obtained on stone chipping. It was soon apparent that little

material of that nature could be recovered. No architectural remains were located within the area excavated. Four man-hours were spent at the site.

TABLE 10
POTTERY TYPES BY LOCATION,
LA 4312, IN PERCENTAGES

Types	Surface	Fill
Dinetah Utility	83.1	93.8
Gobernador Polychrome	15.6	1.4
Frances Polychrome	1.3	4.3
Rosa Gray	-	0.4
Total Percent	100.0	99.9
Total Sherds	77	210

Artifact Description

Except for one Rosa Gray potsherd, the entire collection of artifacts represents the late Gobernador Phase. The material from excavation substantially duplicates that obtained from the surface. The similarity in design of all of the Frances Polychrome sherds indicates that they are from the same vessel.

Stone artifacts are limited to one mano of the two hand variety, 4.6 inches long, somewhat wider at one end, having a maximum width of 10.8 inches. The grinding surface is quite flat, having been used on a slab metate. Pecking scars on the grinding surface show that it had been sharpened shortly before it was discarded.

The bone awl had been made from a long bone of a large animal, but only the tip remains.

Excavation failed to yield the type of flakes sought, small waste flakes from the manufacture of tools by pressure chipping. Instead the evidence indicates that the flakes are waste material from the primary flaking of cores by percussion and are identical to waste flakes at the other Navajo sites. The stone material is all local except for two pieces of chert from the Pedernal district near Abiquiu, New Mexico (Table 11). Five of the waste flakes show evidence of use.

TABLE 11
STONE TYPES BY LOCATION, LA 4312

Types	Surface	Fill
Quartzite	13	46
Quartzitic Sandstone	-	10
Sandstone	-	13
Limestone	-	5
Igneous	4	52
Obsidian	3	1
Jasper	2	-
Chert	4	7
Chalcedony	11	7
Petrified Wood	1	2
Limonite	-	1
Total Specimens	38	144

LA 4331

In general configuration, LA 4331 is very similar to LA 4314. As the only other known example within the Navajo Reservoir of a Pueblito built on top of an isolated talus boulder, it was deemed essential that the site be excavated (Fig. 26). In addition to the building on top, another unit was constructed against the boulder. This aspect promised to yield information as to the type of use made of the area immediately surrounding the boulder base.

Description

The site is on the north side of the San Juan River (Fig. 19). It is situated on the rear of the first Pleistocene bench about two hundred and twenty five feet from the foot of the talus slope, and three hundred feet from the river. The major vegetation on the bench is sagebrush, pinyon, and juniper.

Surface features also include two areas of surface trash concentration, one to the north of the boulder and one to the south.

For descriptive purposes, five units are designated. Pueblito 1 is the unit on top of the rock, Pueblito 2 is the masonry structure against the rock, the Outdoor Workspace is southwest of Pueblito 2, and there are two trash areas, of which Trash Area 1 is the larger.

Excavation was initiated by removing the fill of Pueblito 1; then the walls of Pueblito 2 were outlined and the fill removed. Fill was removed from Trash Area 1 in an attempt to locate structures; and, finally, the area between Pueblito 2 and the Trash Area was cleared. Total excavation time was thirty-five man-days.

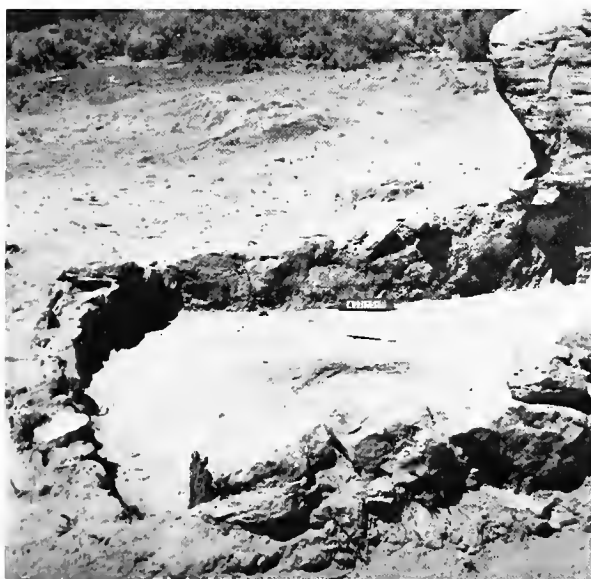


Fig. 26. Views of LA 4331, an excavated Pueblito. Upper left, Pueblito 1 viewed from the west; Upper right, overall view of the site; Lower left, Pueblito 2 viewed from the northeast; Lower right, metate bin and Pueblito 2 from the southwest.

Architecture

Architectural construction was confined to the two Pueblitos and to an outdoor workspace adjacent to the boulder.

PUEBLITO 1

The unit on top of the rock has two parallel sides and pointed ends, conforming closely to the shape of the surface. Two straight cross walls

divide the structure into three rooms, each one longer in the north-south direction.

Walls were constructed of large, unshaped flat sandstone slabs set in adobe, and resting directly on the bedrock. Slabs are up to 1.8 feet in length, 1.0 feet in width, and 0.4 feet thick. The easternmost cross wall, which shows evidence of adobe plaster, is the best preserved. All of the others are quite low. The major portion of the walls have fallen outward and off the rock, partially burying Pueblito 2.

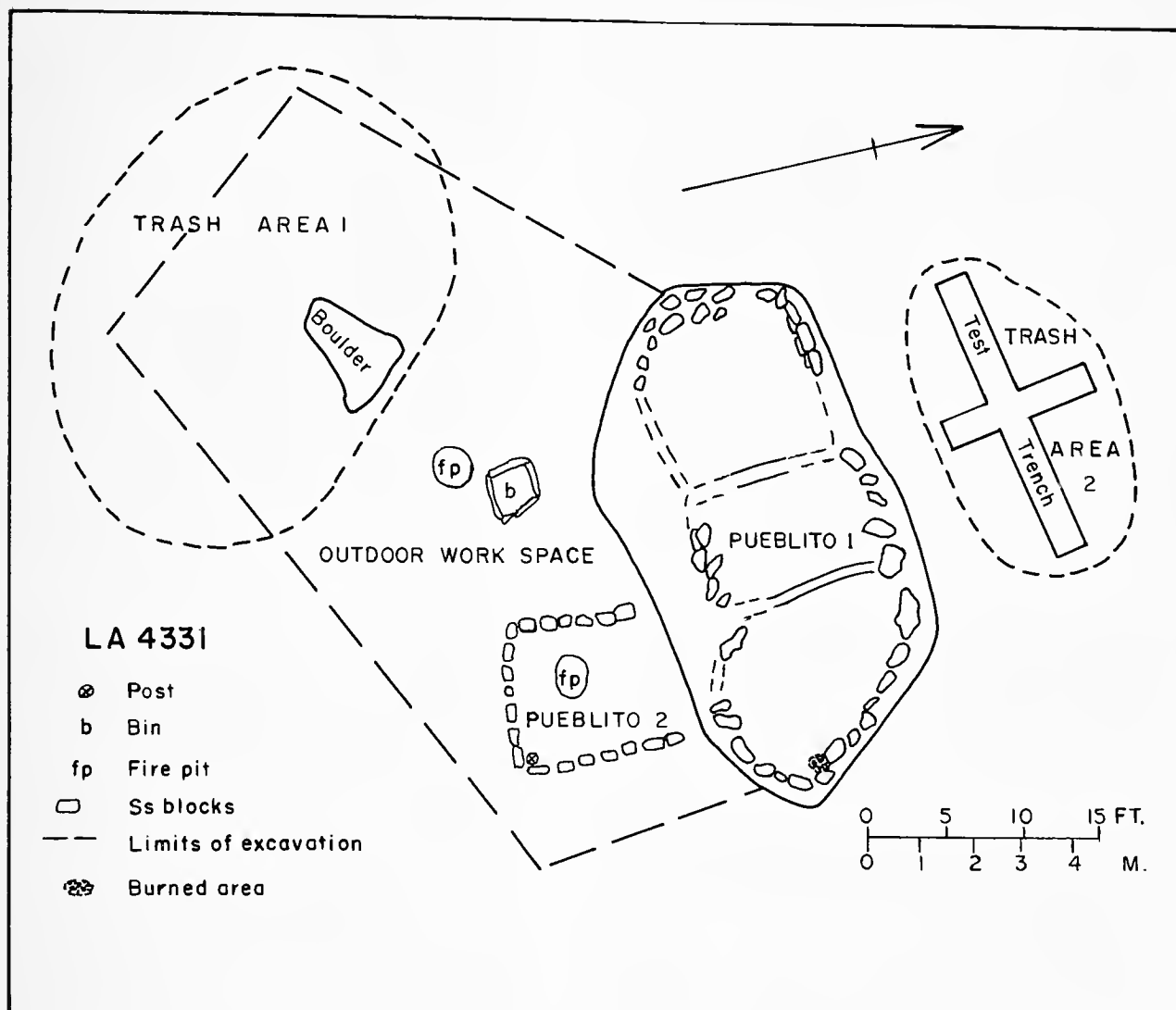


Fig. 27. Plan of LA 4331.

Pueblito 1 has a sloping floor which has a considerable gradient from north to south, only slightly less than that of the top of the boulder. The lowest portion of the rock surface was filled with earth in an effort to level the floor. The rest of the floor is formed by the bedrock.

A small burned area at the extreme eastern end of Pueblito 1 is the only evidence of a hearth in that structure. It is irregular in shape and consists of a fire reddening of the bedrock and the adjacent portion of the wall.

PUEBLITO 2

The walls of the lower structure are of unshaped sandstone blocks set in adobe; the east and west walls are built on a use surface. The method of construction is similar to that of

Pueblito 1 with one exception: the sandstone blocks are shorter and thicker, and less mortar was used. Average block size is between 1.0 and 1.5 feet in length, 0.8 feet in width, and 0.5 to 0.6 feet in thickness. No evidence of wall plaster was found.

The floor was dug 0.4 feet below the level of the ground on the west side and plastered with adobe. The excavation was necessary to level the floor surface on that side.

Numerous juniper beams were found in the fill and within the fallen masonry of the two structures. Their position within the fill suggests that they had been oriented north-south. One vertical juniper post at the southeast corner of Pueblito 2 is 0.3 feet in diameter, and stood as high as the wall, or 0.5 feet, at that point (Fig. 27).

Pueblito 2 has a fire pit dug into the sterile subsoil (Fig. 26, lower left). In profile, it is shallow, having a flat bottom and straight out-flaring sides. No evidence exists that the pit was plastered. The bottom was covered with a thin layer of ash.

OUTDOOR WORKSPACE

A level, open area to the south of the talus boulder and west of Pueblito 2 is about twenty feet square, and would have been sheltered from sun and wind during part of each day (Fig. 26, lower right). Excavations were conducted to determine what use was made of this area. A use surface was found and cleared, revealing a fire pit and a mealing bin. These features, situated close together, were probably used for the preparation and cooking of food.

The fire pit is a simple basin scooped out of sterile soil. In profile, it is sub-hemispherical.

The metate bin is made of thin sandstone slabs set vertically to form a box. The stones are set 0.5 feet into sterile soil, the floor of the bin being 0.7 feet below the top of the slabs. The top of the bin projects 0.5 feet above the use surface. Within the bin was a grinding slab, which is discussed under Artifact Description below. Cultural materials are listed in Tables 12, 13, and 14 under Trash Area.

TRASH AREAS

Two areas of trash concentration were discovered near the habitation units, one to the southwest and the other to the north. The larger of these areas (Trash Area 1) was almost completely excavated to determine if the area were a trash-filled hogan, which it was not. The trash deposit was oval in form and shallow, and contained a quantity of cultural debris from the habitation units, including bones, sherds, stone chips and charcoal-blackened soil.

Trash Area 2, to the north of the talus boulder, is smaller and concentrated in an oval area. Test trenches were excavated to sterile in this area to determine if any features were present; none were located. Cultural debris was similar to that in Trash Area 1, and is listed under Trash Area in Tables 12, 13, and 14.

Artifact Description

Excavation of the features described above revealed a number of artifacts in addition to those obtained by surface collection (Tables 12, 13, and 14). The collections from all portions of the site are homogeneous in character. Except for a harness and some early potsherds, they are Gobernador Phase. A few potsherds lying on the terrace apparently are related to a limited Rosa Phase occupation.

POTTERY

A fairly large sample of sherds was obtained from this site (Table 12). Indigenous types include

Dinetah Utility and Gobernador Polychrome. The trade wares indicate, at least indirectly, contact with the Rio Grande Pueblos, Western Pueblos, and the Hopi. Most of the pottery postdates the Pueblo Revolt, indicating that the initial occupation of the site was about A. D. 1700. The presence of Ashiwi Polychrome, Puname Polychrome, and Frances Polychrome gives evidence that the site was not abandoned until sometime between A.D. 1750 - 1775.

TABLE 12

POTTERY TYPES BY LOCATION, LA 4331, IN PERCENTAGES

Types	Surface	Pueblito 1	Pueblito 2	Trash Area
Dinetah Utility	78.0	100.0	57.1	81.9
Jemez Black-on-White	0.3	-	-	-
Gobernador Polychrome	12.9	-	-	9.8
Frances Polychrome	0.3	-	-	3.2
Late Rio Grande glaze	5.8	-	42.9	4.9
Ashiwi Polychrome	0.8	-	-	-
Puname Polychrome	0.3	-	-	-
Hopi Yellowware	0.3	-	-	-
Rosa Gray	0.3	-	-	-
San Juan Redware	1.6	-	-	-
Total Percent	100.6	100.0	100.0	99.8
Total Sherds	254	7	7	61

PROJECTILE POINTS (3)

One point, of Pedernal chert, is triangular in outline. The tip is missing, but the original length was between 0.8 and 0.9 inches. It is 0.45 inches wide and 0.1 inches thick. A second point, also of Pedernal chert, is small and side-notched, but the base is missing. The third is a San Jose point, stemmed, having an indented base, and made of obsidian. It is definitely of Archaic age, and intrusive at the site (Dittert et al., 1961, Fig. 43, e).

BLADES (3)

All blades are fragmentary, bifacially chipped, and do not have notches or stems. They are made of common chert, Pedernal chert, and jasper.

KNIFE (1)

An elongate flake of obsidian had been struck from a prepared core, and chipped from one face.

TABLE 13
STONE TYPES BY LOCATION, LA 4331

Types	Surface	Pueblito 1	Pueblito 2	Trash Area
Quartzite	18	-	1	3
Sandstone	-	3	-	-
Shale	1	-	-	-
Limestone	-	-	1	-
Igneous	6	1	-	3
Obsidian	37	-	2	-
Jasper	4	-	-	-
Chert	39	-	-	5
Chalcedony	39	1	-	3
Petrified Wood	2	-	-	-
Reddle	-	-	-	1
Total Specimens	145	5	4	15

It is 2.3 inches long, 0.7 inches wide, and 0.2 inches thick. The shape and manufacture is that of the Western Pueblos.

SCRAPERS (3)

Prepared scrapers were not found at the site, but primary flakes were used for scraping. Shapes utilized were similar to those reported by Dittert *et al.*

HAMMERS (3)

Two specimens are of the generalized sub-spherical style, battering scars occurring mostly on the sharper edges. One, of quartzite, weighs 6.1 ounces; the other, of limestone, weighs 31.9 ounces.

A flaking hammer, of quartzite, is 4.9 inches long and averages 1.2 inches in diameter. Percussion scars show that it was held "club-like" in the hand, and blows were struck with the side of the hammer close to the end. It weighs 8.1 ounces.

CHOPPER (1)

Only one chopper was recovered. It is a stream-worn cobble of quartzite that had been flaked roughly from both sides. It weighs 7.8 ounces, and had been used slightly for battering at one end.

SHELL BEAD (1)

The single ornament from the site is a small bead cut from the shell of a spiral gastropod. It is 0.3 inches in diameter and was drilled from the concave surface.

AWL (1)

The right ulna of a deer was apparently sharpened to a point, but the tip had been lost. Signs of shaping and polish remain near the point but the handle portion is unaltered.

FLESHER (1)

A rectangular section of a very large rib was beveled to a chisel edge. The dimensions are: length - 7.6 inches, width - 1.5 inches, thickness - 0.5 inches.

OTHER ARTIFACTS

The maul and grinding slab listed in Table 14 were fragmentary and do not permit adequate descriptions except that they were recognizable. A graver listed on the same table was described previously.

TABLE 14
ARTIFACTS BY LOCATION, LA 4331

Artifacts	Surface	Pueblito 1 Wall Fall	Pueblito 2 Fill	Trash Area Fill
Projectile Point	1	-	-	-
Blades	2	-	1	-
Scraper	1	-	-	-
Hammers	-	-	1	2
Chopper	-	-	-	1
Maul	-	1	-	-
Grinding Slab	-	-	-	1
Shell bead	1	-	-	-
Awl	-	-	-	1
Harness Buckles	-	2	-	-
Projectile Points*	2	-	-	-
Knife*	1	-	-	-
Scrapers*	2	-	-	-
Graver*	1	-	-	-
Chopper*	1	-	-	-
Bone flesher*	1	-	-	-
Total	13	3	2	5

*Artifacts described in Dittert, *et al.*, 1961, pp. 171-182.

STONE

As in the case of potsherds, a greater variety of stone material was present on the site than at LA 4312, 4314, and 4411 (Table 13). This is likely due to a certain amount of the tool stone being traded into the site. Definitely identifiable trade materials are pieces of chert from the Pedernal district near Abiquiu. There is also obsidian, probably traded from the Jemez Area; and reddle, possibly from Chaco Canyon or Acoma. Ten of the flakes show modification from use. The majority of the utilized flakes are obsidian.

Discussion

The two different styles of masonry in Pueblitos 1 and 2 may possibly be the result of construction at different times. Even if this is true, it is probable that the two units were occupied simultaneously. Another explanation is that Pueblito 1 was constructed during or immediately after the Pueblo Revolt, when there was a need for a defensive location. At a later date, after the tension was relaxed, Pueblito 2 was built.

Because nearly 80 percent of the pottery is Dinéyah Utility, the Navajo component at the site is well-defined (Table 12). Frequent sherds of Pueblo pottery show that the component

lies within the Gobernador Phase. Five sherds of early Pueblo pottery (Rosa-Piedra Phases) may represent previous utilization of the terrace.

Stone artifacts, although limited in numbers, are like those at LA 4199. The projectile points are of varied sizes and shapes, as are the blades, knives, scrapers and graters. On the other hand, tools for pounding, chopping and grinding are more uniform. Chipped and flaked tools, at least in part, were obtained from earlier sites, but others were made locally. Materials, too, indicate something of the same nature, for points and other chipped artifacts were frequently made of exotic Pedernal chert and obsidian.

The elongate flake knife and the flaking hammer should be added to the list of Gobernador Phase traits. Both were discovered also at other sites of the phase within the Reservoir.

Artifacts related to ceremony were not found and those associated with ornamentation were limited to a single shell bead. As usual, grinding stones such as manos and metates were scarce, as were bone tools. All other artifacts seem to be those of basic subsistence.

The leather harness and iron buckles found beneath the wall fall of Pueblito 1 apparently date from about A. D. 1900. They do not belong to the period of Navajo occupation.

LA 4072

A survey in 1957 revealed a walled-up cist in a rock shelter high on the cliff face of a mesa just south of the junction of the Pine and San Juan Rivers. The site is in Rio Arriba County, New Mexico. During the initial reconnaissance, the site was observed from the bench below. It was then believed that the cist represented a small storage unit. During the following field season, the site was investigated, at which time it was apparent that the structure had been used for the burial of a partially cremated human being. The fill within the structure consisted of adobe masonry casts, charcoal, and charred human bones. Due to the slight amount of fill, no excavation was necessary. The bones were collected and the site mapped.

Architecture

The structure consists of two walls built within a small rock shelter to form a small room, which extends from the floor to the ceiling of the shelter (Fig. 28).

The room is rectangular in plan and has rounded corners. The anterior-posterior cross section of the room is rectangular; while the transverse cross section is in the shape of a right triangle, the widest portion of the room being at floor level. The walls are of selected,

rectangular, sandstone blocks set in adobe mortar. Blocks are coursed and plastered inside and out.

A doorway high in the cross wall has a sandstone slab lintel; two other slabs at the bottom of the opening form a sill. These slabs abut the main wall on the outside of the cist. The inside border of the doorway extends to the rear of the rock shelter (a total width of 1.5 feet), but this appears to be the result of a slight amount of wall fall. The original door dimensions appear to have been 1.0 feet in width and 1.3 feet in height. Height of the sill above the floor is 2.3 feet. The door may have been walled up in antiquity, but the site had been entered in recent times, which would account for the doorway being open.

The adobe casts within the structure seem to have been the result of the fall of the masonry segment to the right of the door. Except for the cremated remains, nothing was enclosed within the cist. Dust on the floor may have sifted in after the door was opened.

The Cremation

Bone fragments recovered have not yet been studied by a physical anthropologist. A superficial examination indicates that the bones are those of a large adult. The skull was missing, presum-

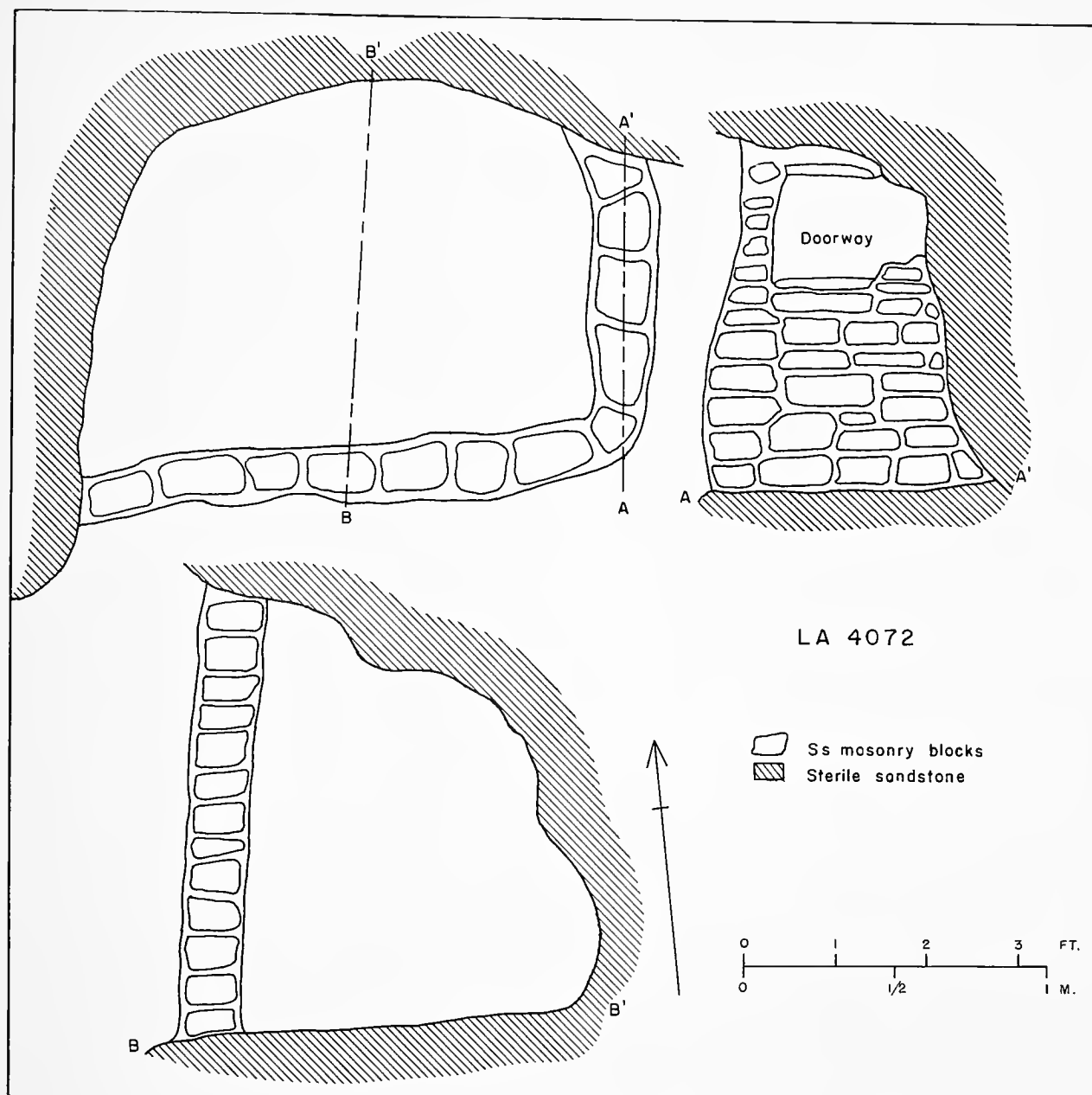


Fig. 28. Plan and profiles of LA 4072.

ably being removed by earlier visitors. The bones are incompletely burned and indicate no intent to reduce the body to ash. The charcoal within the cist indicates that the charring was done there. When found, the bones were scattered over the floor of the cist in no apparent order. Consequently, it is not possible to determine if this was a primary cremation or a cremated bundle burial. The scattering of the bones may have been done by later visitors to the sites. No burial offering was found.

Age of the Site

Because no artifacts were located, dating of the structure is dependent upon the architecture. The masonry style is identical to that in the excavated pueblitos described above. On the basis of this similarity, the site is assigned to the Gobernador Phase.

SUMMARY

The chronological position of the sites discussed in this chapter is fairly clear, except for LA 4411. The other sites all appear to be roughly contemporaneous, and may be assigned to the Gobernador Phase, dating about A.D. 1700-1775. The pottery complex suggests that these sites were occupied until the end of Gobernador Phase, at which time the Navajo Reservoir District was abandoned.

The material from LA 4411, though not conclusive, appears to be Navajo. Perishable artifacts are very similar to those of LA 4298, a Navajo rock shelter in the Pine River Section. The twilled sandal with a cupped heel is a distinctive form found in both locations.

The Navajo sites are very similar to those reported from Companero, San Rafael, Munoz, Gobernador, Frances, La Jara, and Pueblito Canyons, some fifteen - twenty miles to the southeast (Keur, 1944). The sites in the Navajo Reservoir thus represent an extension of the known distribution of Gobernador Phase sites to the northwest. The major differences between the sites reported here and those described by

Keur are the absence of artifacts of European manufacture and the relative infrequency of Pueblo material objects. These differences reflect the geographic isolation of the Reservoir.

Artifacts of stone and pottery indicate that trade was common during the Gobernador Phase, items being exchanged with the Río Grande Pueblos, the Western Pueblos, and the Hopi. The shell bead was probably made from a marine shell and indicates that a trade route extended to either the Pacific Coast or the Gulf of California.

Utilization of the La Jara and Frances Sections by the Navajo demonstrates the importance of the river valley and its abundant water and arable land, the small rock shelters suitable for food storage, and isolated talus boulders affording defensive locations for habitations.

The walled-up rock shelter was used for a human cremation, and is a unique site, of a type not represented in any other study of Navajo archaeological remains.

CHAPTER IV

THE PINE RIVER SECTION

Survey of the Navajo Reservoir revealed concentrations of Navajo sites at the junction of the Pine and San Juan Rivers, at the mouth of Sambrito Creek and in upper Frances Canyon. By contrast, sites along the Pine River were not common. It was decided to excavate a sample of these to determine

if any significant differences existed between the Navajo occupation of the Pine River Valley and the rest of the Reservoir. A single unit hogan site and three rock shelters, two of which have masonry structures, were selected for excavation (Fig. 29).

SITUATION AND RESOURCES

Physical and biological characteristics of the Pine River Section have been described in detail previously (Dittert, *et al.*, 1961, p.63; Woodbury *et al.*, 1961). The Pine River Section may be described as a deep, narrow canyon incised to a depth of 400 feet into flat-lying sandstone mesas. Within the canyon are benches of limited area, which represent former levels of the canyon floor. Such benches occur intermittently along the canyon wall, and tend to alternate between sides of the river. Vertical sandstone cliffs occur at the front of these benches. The remainder of the canyon wall consists of a steep slope of talus and smooth sandstone. Sites occur on the surfaces of the benches and in rock shelters in the vertical cliff faces.

Resources for prehistoric construction include pinyon and juniper trees, and sandstone blocks, all in the immediate vicinity. A distinction between the Pine River Section and the rest of the Reservoir is the availability of arable land. The narrow character of the Pine River Canyon limits the quantity of land suitable for farming in the valley bottom. The steep sides of the canyon preclude the development of alluvial fans at the mouths of side canyons. As a result of these limitations, the population was never very great.

Nevertheless, the rugged character of the canyon might have made it a natural retreat for refugee peoples, especially because an ample water supply was provided by the river.

LA 4294

Occupation took place in a rock shelter, situated on the east, or right hand, side of the Pine River Canyon (Fig. 29). It is in a cliff below the second bench, about eighty feet above the canyon floor, at an elevation of 5980 feet in San Juan County, New Mexico. Formation of the rock shelter was by differential weathering of a soft, sandy shale lens within the sandstone cliff. The cave first appeared to be of recent origin, for there was almost no roof fall evident. It is long and narrow, the sheltered portion being some seventy-nine feet long by seven to eleven feet wide. The utilized space or floor is somewhat smaller. Later excavation revealed that two large boulders at the north end of the shelter had fallen after the site was occupied. The mouth of the shelter faces northwest, and surface indications included fallen sandstone masonry, corn cobs, burned sticks, and other perishable material.

Excavation revealed two masonry rooms, which were excavated with shovels and trowels,

the fill from each being removed to the floor level (Fig. 34). The masonry walls were then removed, and the fill of an earlier occupation was revealed, extending to the bedrock floor of the cave. All fill was screened during the excavation, which required fifteen man-days. The two occupations identified will be described separately.

Architecture

EARLY OCCUPATION

The bedrock floor of the cave was very irregular; therefore the early inhabitants brought in fill to level it. The fill developed into a packed surface from use, and served as the floor of the cave both before and after the construction of the masonry rooms (Fig. 30). Into this floor were cut four shallow, basin-shaped fire pits (Pits A, B, C and G). All basins are round in plan, and Pits C and G are hemispherical in section. Pit A has a rounded cross section,

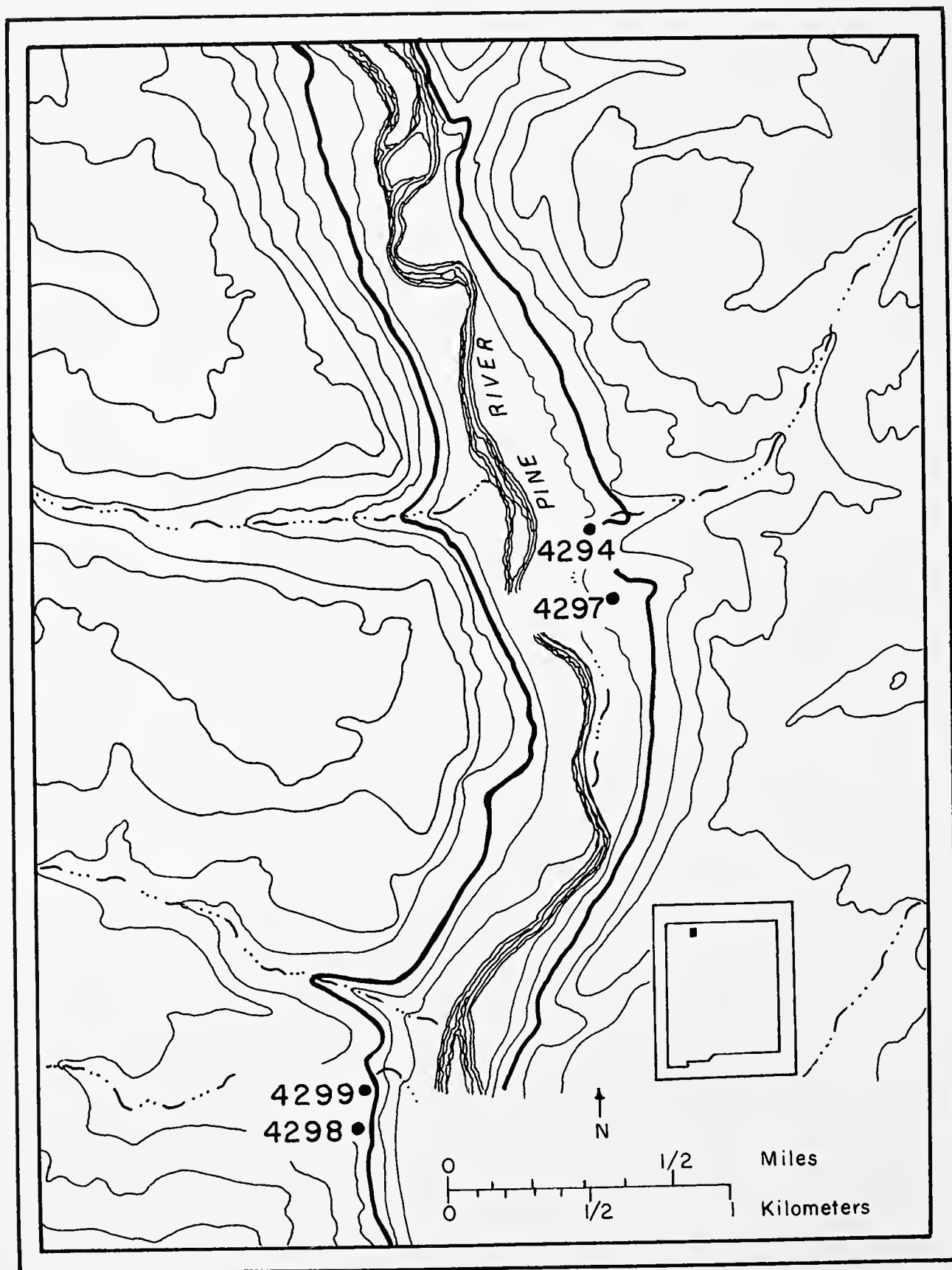


Fig. 29. Map of sites excavated in the Pine River Section, LA 4294, 4297, 4298, and 4299.



Fig. 30. View of floored area of Rock Shelter after the masonry walls have been removed, LA 4294.

one side being almost vertical and the other side sloping. Pit B has a rectangular cross section with rounded corners. Pit A is lined with adobe; others are cut into the sandstone bedrock. Dimensions of the pits are as follows, in feet.

<u>Pit</u>	<u>Length</u>	<u>Width</u>	<u>Depth</u>
A	1.7	1.7	0.5
B	2.0	2.0	0.6
C	1.2	1.2	0.4
G	2.0	2.0	0.2

A fire area on the floor, labeled K (Fig. 34) was also located.

The arrangement of a line of post holes (D, E, F, H, I, J and L, Fig. 34) in the fill suggests that a jacal structure of some type had been built in the cave during the early occupation and removed prior to the construction of the masonry units. The posts averaged 0.4 feet in diameter and 0.2 to 0.5 feet in depth.

LATE OCCUPATION

Two semi-circular masonry walls within the cave form rooms of rectangular shape but having rounded corners (Fig. 33). Fallen boulders were found at the rear walls. The rooms are in the central and widest portion of the cave. Between the rooms, an aisle three feet in width is formed. Interior features include a doorway and a fire area on the floor of the north room and a fire pit in the south room. The south room wall apparently was semi-circular, and probably abutted the rear of the cave at each end. However, the south end of that wall was not preserved.

Walls are formed of selected sandstone slabs set in adobe mortar in irregular courses. Because of outward fall that has occurred, the preserved portion ranges from one to four courses in height.



Fig. 31. Fire Pit in south room, LA 4294.

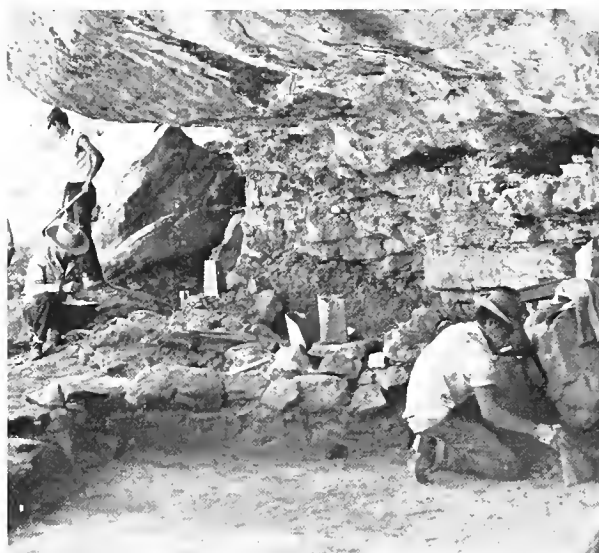


Fig. 32. LA 4294 during excavation.



Fig. 33. Structures of late occupation after excavation, LA 4294. Note fallen door jamb and lintel posts in foreground.

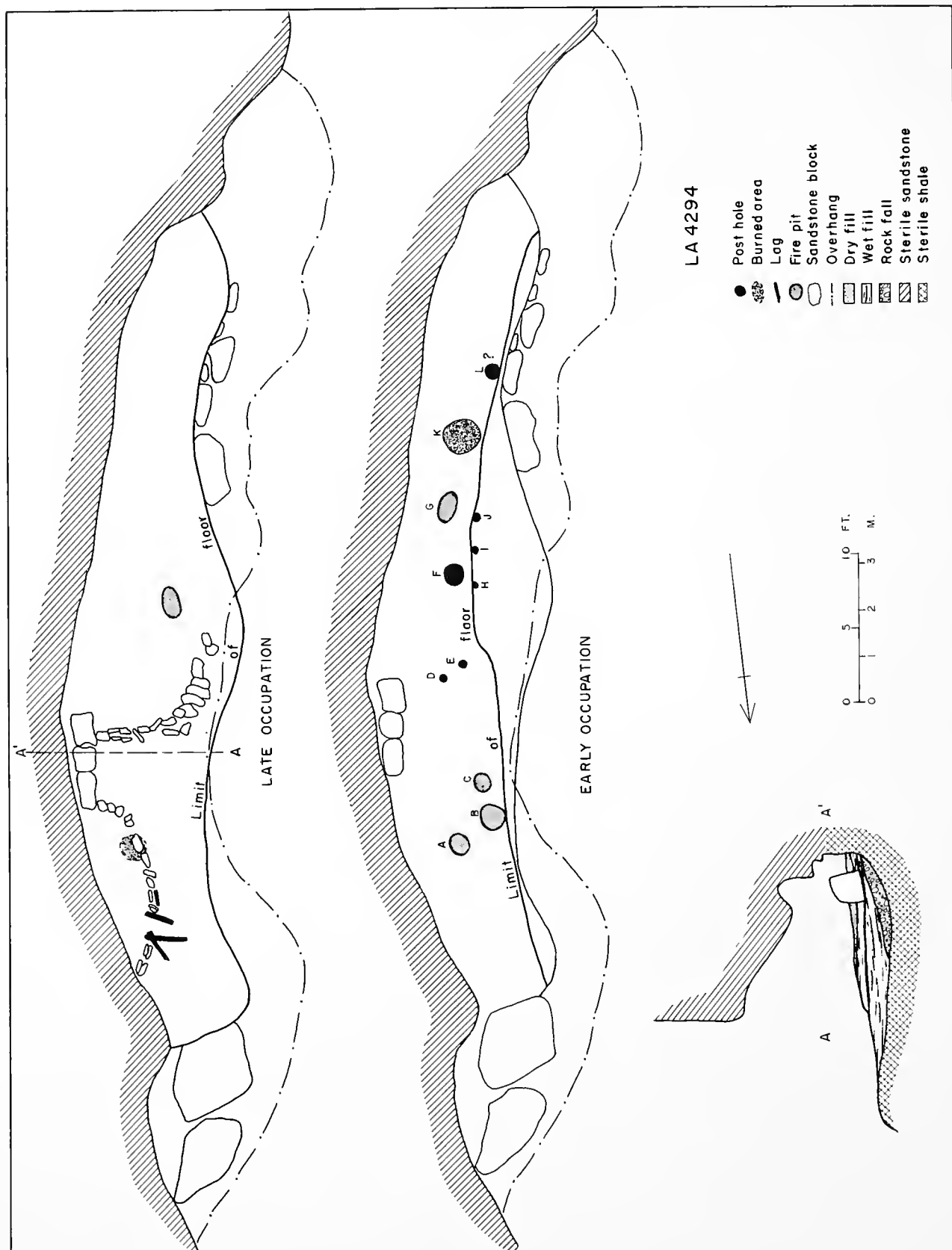


Fig. 34. Plans and profile of Rock Shelter, LA 4294, showing the early and late occupations.

A fallen wall section 7.9 feet in length showed some separation of the blocks from the fall. The original wall height is estimated at approximately five feet, which would have reached the ceiling. At the rear of the cave, the walls about three large fallen blocks of sandstone which were undoubtedly parts of the rooms.

Average masonry blocks used in the wall are from 1.0 to 2.1 feet in length, 0.5 to 1.5 feet in width, and 0.2 to 0.8 feet in thickness.

Three logs associated with the roof fall of the north room suggest the former presence of a doorway (Fig. 34). The opening probably consisted of two juniper logs set as uprights or door jambs with a pinyon log laid on top as a lintel. The door is about three feet in width and six feet in height. No evidence of a door covering exists.

A fire pit adjacent to the south room is dug into bedrock and lined with adobe (Fig. 31). The pit is oval in plan and rectangular with rounded corners. A circular, deeper portion probably was used for the fire, the adjacent area serving as an ash pit. The overall pit is 1.7 feet wide, 2.5 feet long, and 0.6 feet deep. The circular portion within the pit is 1.4 feet in diameter.

Because the burned area in the north room extends under one wall, it must antedate construction.

Fill within the cave consisted of two layers: an upper dry layer and a lower wet layer. The dry layer was 0.5 feet in thickness and contained rock fall, dust, and perishable materials, primarily corn cobs and plant remains. The wet layer consisted of damp earth and disintegrated roof fall but no perishable material. This latter deposit continued to the cave floor, the only interruption being the man-made floor (Fig. 34).

Artifact Description

SIDE SCRAPERS (3)

Primary flakes of chert were slightly altered by unifacial chipping of one edge. Two examples were found in the dry trash and one was found beneath the floor (Dittert, et al., p. 180).

HAMMERS (2)

Stream-worn cobbles of quartzite were originally flaked for possible use as choppers, but after the edges dulled they were used for hammering. Both the flaked end and the rounded unflaked end show battering marks. Weights are 14.0 and 24.0 ounces.

MANOS, TWO-HAND (3)

Two of the manos are of the two-hand variety, and were used in trough metates. The third is only a fragment. All are of sandstone, having lengths 4.5 to 4.6 inches; widths, 7.5 to

TABLE 15

STONE TYPES BY LOCATION, LA 4294

Types	Dry Trash	Below Floor
Gneiss	1	-
Quartzite	3	3
Siltstone	1	-
Shale	3	-
Igneous	-	1
Obsidian	1	-
Chert	-	3
Chalcedony	-	1
Total Specimens	9	8

TABLE 16

ARTIFACTS BY LOCATION, LA 4294

Artifacts	Dry Trash	Below Floor
Side scrapers	2	1
Core	-	1
Hammers	-	2
Whetstone	1	-
Two-hand trough		
mano	3	-
One-hand mano	1	-
Metate		
basin	1	-
trough	2	-
Bone bead	1	-
Clay Pipe	1	-
Wrapped stick	1	-
Yucca thong	1	-
Corn husk	1	-
Leather thong	1	-
Stitched leather	-	1
Buckskin	1	-
Compound arrow	1	-
Gourd dipper	1	-
Total Specimens	19	5

8.9 inches; and thickness from 1.8 to 2.5 inches (Dittert, et al., p. 188).

MANO, ONE-HAND (1)

A stream-worn cobble of quartzite is flattened on one surface from use in a basin metate. It is 4.2 inches long, 3.6 inches wide, and 2.4 inches thick (Dittert, et al., p. 186).

METATES (3)

Two types were recovered. Trough metates were represented by two specimens, both fragmentary (Dittert, *et al*, Fig. 53a). Both are of sandstone, and appear to be full troughs, but dimensions cannot be taken. One basin metate is broken but restorable. It was made from a large irregular block of tabular sandstone 23.8 by 14.6 by 3.9 inches. The basin is oval, 11.0 inches long, 5.0 inches wide, and 0.8 inches deep. At one time the metate had been used for grinding azurite, but this was probably not its regular use.

BONE BEAD (1)

An irregular segment of mammal bone was cut to form a tapering tubular bead. The cut ends were smoothed and there is moderate wear on the interior from being strung. It is 1.1 inches long and tapers from 0.6 to 0.5 inches in diameter.

GOURD DIPPER (1)

A bottle gourd was cut longitudinally to form a dipper. It had been twice cracked, and twice stitched with yucca twine. One row of stitching was in a Z form, staggered holes being punched in the gourd. The other was a simple cross stitch, the holes being diametrically opposite. Both examples are fragmentary. Finally, it was broken and apparently discarded. The incomplete specimen is now 4.5 inches long, 3.7 inches wide, and 2.3 inches deep. Edges were smoothed, but there is no painted decoration (Fig. 35).

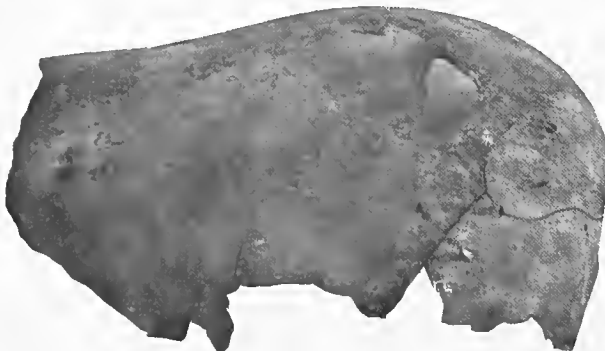


Fig. 35. Gourd dipper, LA 4294

CLAY PIPE (1)

A "Cloud Blower" pipe was made of sand tempered clay. It is fired a dark brown, and made of paste similar to that of Dineta Utility pottery. The shape of the pipe is intermediate between that of an egg and that of a cone. Maximum diameter is 1.1 inches. It is 2.0 inches long.

Artifact Discussion

Dineta Utility potsherds were found in the dry fill and below the floor. Gobernador Polychrome, however, was found only above this surface in the dry fill. It is believed, therefore, that the dry trash can be assigned to the Gobernador Phase, and the material below the floor to the Dineta Phase.

TABLE 17

POTTERY TYPES BY LOCATIONS,
LA 4294, IN PERCENTAGES

Types	Dry Trash	Below Floor
Dineta Utility	93.8	100.0
Gobernador Polychrome	6.3	-
Total Percent	100.1	100.0
Total Sherds	32	9

The manos and metates found in the shelter may have been recovered from earlier sites because neither the basin nor the trough metate nor the associated mano types appear to be typical of Navajo sites observed during the survey or subsequent excavations. Limited data on the Dineta Phase tend to show that the metates used were small shallow basin types, and more complete data on the Gobernador Phase show that the standard type was a slab metate.

Several articles of perishable nature, such as sticks wrapped with yucca, corn husk and leather, are similar to items recovered in quantity at LA 4298. Because of the large sample described there, descriptions of perishable items will not be given at this point.

Almost all of the artifacts at LA 4294 were in the upper or dry trash level. Therefore, the occupation appears to have taken place primarily during the Gobernador Phase. The only artifacts assignable to the Dineta Phase are a flake scraper, a core, two hammers, a fragment of stitched leather of unknown use, and nine sherds of Dineta Utility pottery.

All artifacts within the shelter were concerned with domestic activities, such as the production and preparation of food and clothing. Only the clay pipe and the bone bead fall outside these categories. Activities relating to ceremony, amusement, art, and decoration are not represented by artifacts or at best indirectly suggested.

Reconstruction of Events

The shelter was formed by differential weathering of a green shale lens in the sandstone cliff wall. Decomposed shale accumulated on the bed-

rock floor of the cave until this layer was up to a foot in thickness at the rear. Then sandstone roof fall occurred in the south half. Dinetah Phase people inhabited the cave and modified the floor by the excavation of fire pits into the decomposed shale. Post holes were excavated into the shale in the south half of the cave, and posts erected as internal supports for what seems to have been a jacal wall. Cultural fill began to accumulate, interspersed with more shale fall and some water-laid, sterile, sandy layers. Probably the cave was occupied intermittently at this time. Fill continued to accumulate for some time, and then was leveled off and packed, perhaps more through use than intent, to form a floor. Three shale boulders in the center rear of the cave slumped forward, and

against these boulders were constructed two masonry structures. Cultural fill continued to accumulate. Use of the structures was for both habitation and storage. Both structures were abandoned and may have been intentionally destroyed by pushing over the walls.

While the upper layer of fill remained dry and perishable materials were preserved, only the lower level of fill was subjected to wetting, which destroyed the perishable content. All of the later occupation is probably Gobernador Phase as evidenced by the style of masonry and ceramics. After the collapse of the wall, a slight amount of sandstone roof fall and considerable shale fall occurred.

LA 4297

LA 4297, a small surface site, is on the second bench on the east side of the Pine River. The site is in San Juan County, New Mexico, at an elevation of 6040 feet, 120 feet above the river. A unique feature of this site is its location on a small bench remnant high above the river, and at considerable distance from the valley floor. The situation was not defensive, for the site is clearly visible from the canyon rim.

Surface manifestations noted in the survey included two charcoal-stained sherd areas and two piles of fire cracked rock (Fig. 36).

The sherd areas were identified as structures and labeled Hogans 1 and 2. The cracked rock concentrations are designated Rock Piles 1 and 2.

Excavation procedure consisted of clearing the hogans, excavating two test trenches in Rock Pile 1 and clearing Rock Pile 2. Hogan 1 was revealed to be of the forked stick type. Hogan 2 was a sweat lodge, and the rock piles are the fire-cracked residue from sweat baths. Due to the proximity of the sweat lodge to Rock Pile 1, it appears probable that a second sweat lodge might have been situated near the second rock pile. However, no manifestations of such a structure were present. Total excavation time for the site was fifteen man-days.

Architecture

Including as it does typical features, Hogan 1 strengthens our knowledge of this type of structure. The sweat lodge is a different matter. Though the preliminary survey in the Reservoir had indicated two other piles of fire-cracked rock, the associated sweat lodges were not located. Consequently, the structure at LA 4297 represents the only positively identified sweat lodge in the Navajo Reservoir. The rarity of this trait in the Gobernador Phase contrasts markedly with its prevalence today.

HOGAN 1

A dwelling and an outside fire pit were uncovered in an excavation fifty-eight feet long and twenty feet wide. The dwelling was a forked-stick hogan having two different floor levels, each incorporating different features.

Early Occupation

The early floor of Hogan 1 was revealed to be oval, the northeast portion being identical in position with a portion of the late, overlying structure. Internal features included a cooking pit and a metate bin.

The floor, dug into native soil, was a dish-shaped shallow depression lying 0.3 feet beneath a later floor.

A probable cooking pit was located in the southeast corner, but because the floor was eroded at this point the pit possibly lay just outside the hogan (Fig. 37). The pit resembles one of the fireless cookers described by Hill (1938, p. 173, 174). A similar feature was found in Hogan 2, LA 4199.

Adjacent to the cooking pit was a sandstone slab-lined bin, square in outline, and formed by setting the slabs on edge. The floor of the bin consisted of native soil, and was dug to a depth of 0.5 feet below the outside surface. At the time of excavation only two sides were lined, but when the bin was built slabs were probably present on at least three sides. Because the floor was extensively burned, the bin probably had served as a fire box, from which coals were removed to the cooking pit. It is not certain whether this was a primary or secondary use of the bin. Earlier, it may have been a metate bin.

An isolated fire pit outside Hogan 1 was a shallow basin dug into native soil.

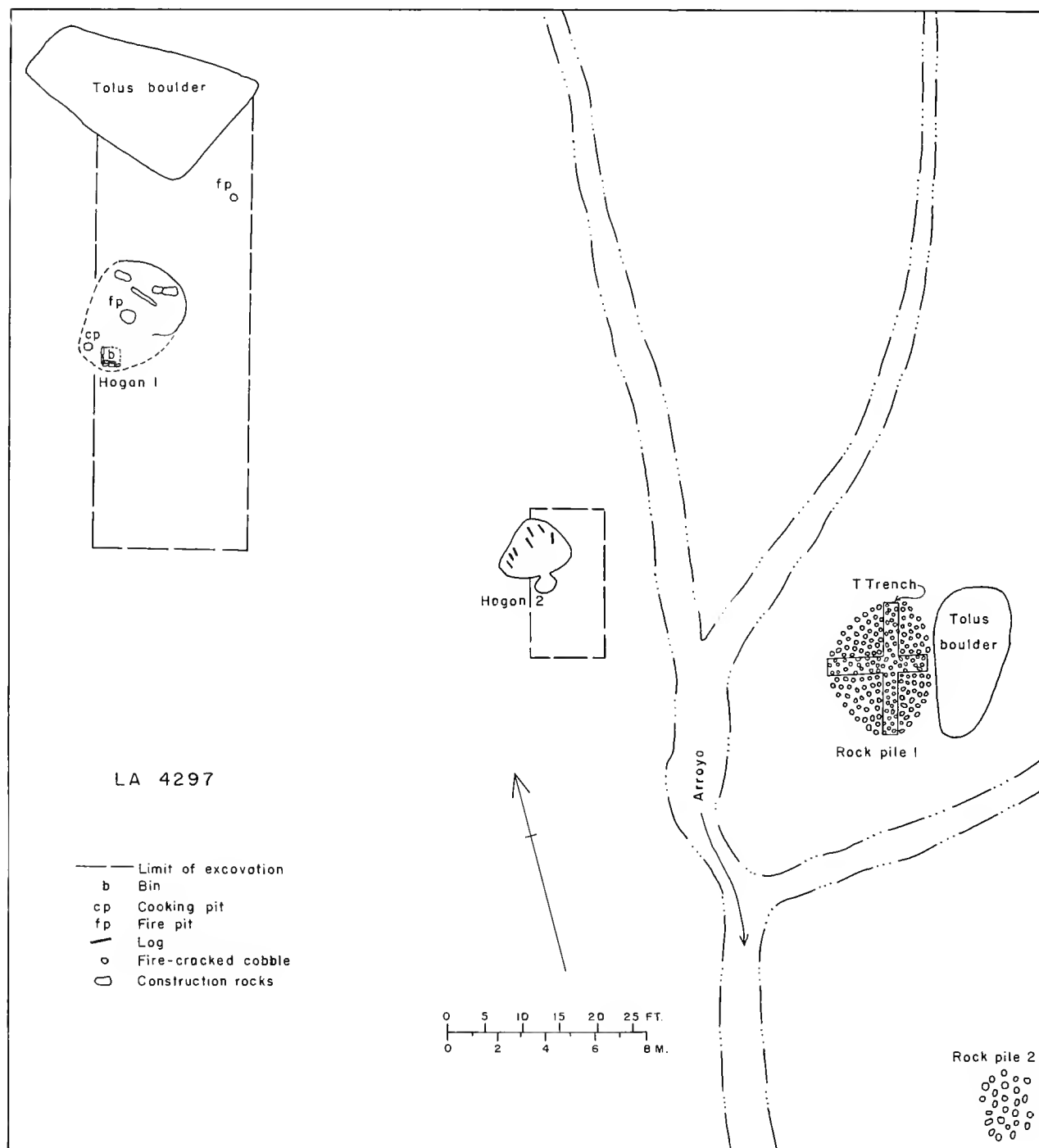


Fig. 36. Plan of LA 4297 indicating surface features and extent of excavations.



Fig. 37. Cooking pit and metate bin, LA 4297.

Late Occupation

The late hogan perimeter is clearly outlined on the east half of the structure, but the west half is difficult to trace and its position may only be inferred (Fig. 38).

Interior features include a fire pit and a group of rocks which may be a metate bin.

The floor consists of hard-packed soil. In profile it is dish-shaped, having a north to south slope of 0.6 feet. The floor surface shows evidence of extensive burning.

A circular fire pit dug into sterile soil in the southwest quarter of the hogan has straight sides, which curve at the base to meet the flat bottom of the pit.

Five rocks set into the floor at the north end of the structure enclose a semilunar-shaped area, five by four feet. The rocks include four river cobbles and a sandstone slab. The function of these rocks is not known, but they may have formed the sides of a metate bin.

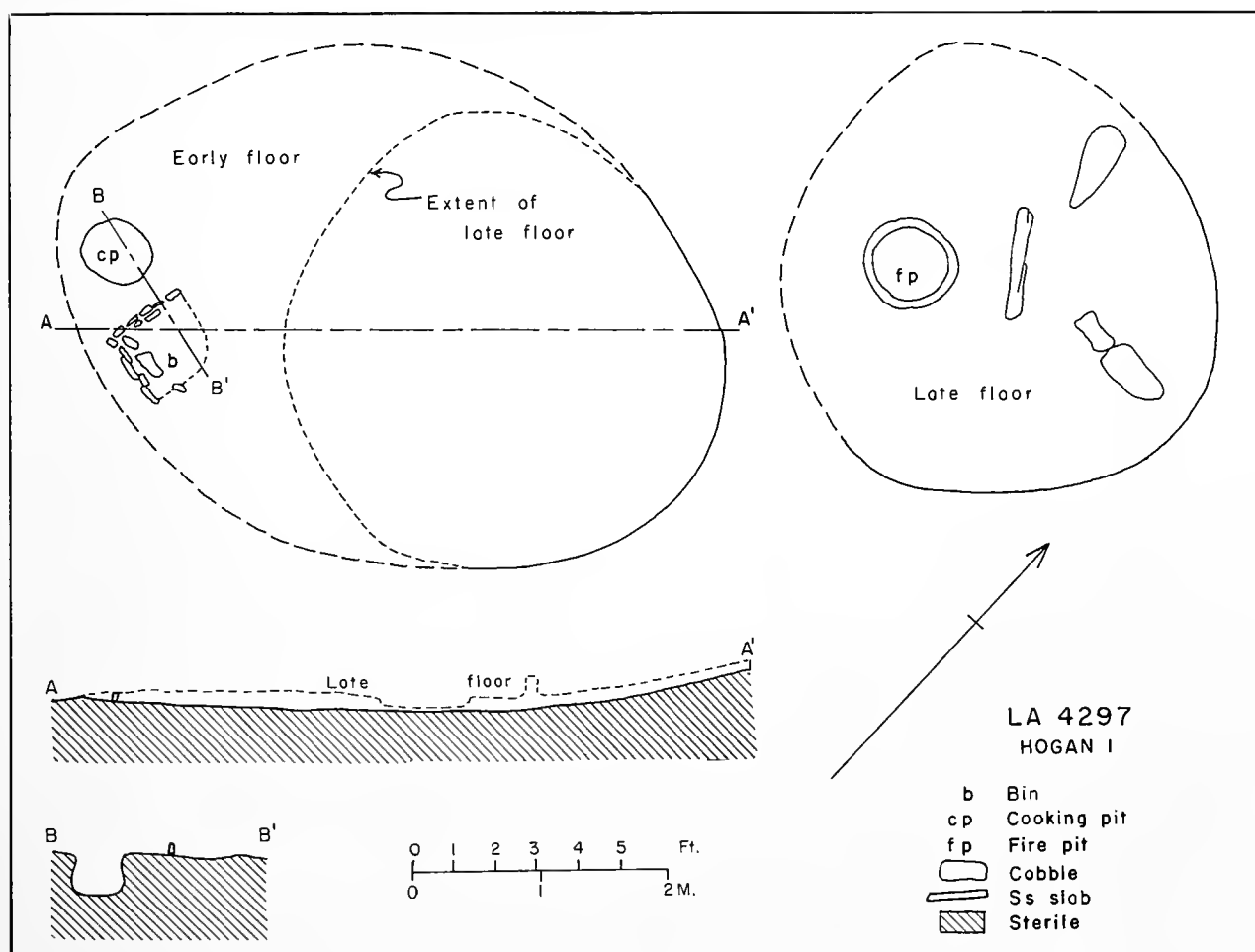


Fig. 38. Plans and profiles of Hogan 1, LA 4297, showing early and late floors.



Fig. 39. View of late occupation, Hogan 1, LA 4297.

Portions of three charred logs on the floor testify to the former nature of the superstructure which, because of extensive burning, was not preserved. The specimens present indicate that the superstructure was probably of the typical conical log type, having forked support posts and leaners from these posts to the perimeter of the floor. All the posts are juniper.

HOGAN 2

A second area of trash fill, ten by twenty feet, was cleared to sterile soil. Within this area was a small oval-shaped hogan, thought to be a sweat lodge.

Because the hogan was built adjacent to a small arroyo, the floor level follows the slope of the ground, a 0.7 foot drop from west to east (Fig. 40). A burned area contiguous to the south wall is of circular form.

The floor consists of native soil, leveled, packed hard and heavily burned. There is no evidence that it had been plastered.

Seven juniper log fragments were found lying on the floor, pointed toward the center of the hogan and implying that the superstructure was of the forked-stick type. The logs are all charred. One log possesses roots, indicating that it was blown over rather than cut.

Adjacent to the south wall of the lodge was a shallow circular depression which shows evidence of burning. It is inferred that this was used to heat the rocks for sweat baths. The association of this exterior fire pit with Hogan 2, combined with the proximity of Rock Pile 1, makes it appear that the hogan structure was actually used as a sweat lodge.

ROCK PILE 1

This feature consists of an oval pile of fire-cracked rock located thirty-five feet to the south-east of Hogan 2 (Fig. 36). The rocks are river cobbles covering an area fifteen by eighteen feet and up to 0.4 feet in depth. The fragments average 0.3 to 0.5 feet in diameter. Excavation of two test trenches through this feature revealed that rocks and charcoal had been dumped on an area of unprepared ground. No features existed below the rocks (Fig. 42). It is assumed that the pile represents the cooled rocks removed from the sweat lodge, Hogan 2.

ROCK PILE 2

This feature is a pile of fire-cracked rocks similar to Rock Pile 1. The rocks are identical in size and nature to those discussed above. The method of excavation consisted of removing the rocks and charcoal-stained soil down to sterile soil. Because no features were revealed beneath the rocks, the rocks probably represent debris from another sweat lodge in the immediate vicinity which was not located. An alternative hypothesis is that this pile represents additional debris from Hogan 2.

ARCHITECTURAL SUMMARY

Items of interest at this site include the only sweat lodge located in the Navajo Reservoir and the third fire-cracked rock site. An unusual feature of the site is the close association of a habitation unit and a sweat lodge, a trait not common in modern Navajo practice, and not represented at Big Bead Mesa (Keur, 1941). The

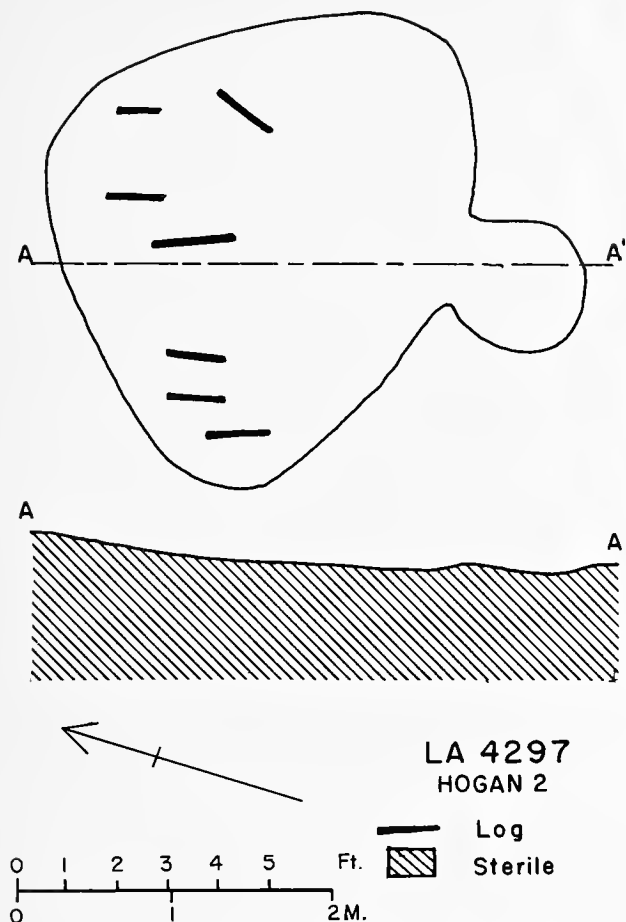


Fig. 40. Plan of Hogan 2, LA 4297.



Fig. 41. Hogan 2, LA 4297, after excavation. Major remains visible are the burned roof support beams.



Fig. 42. Cross-section of Rock Pile 1, LA 4297, after excavation showing the nature of the fill.

cooking pit verifies the practice of fireless cooking at this early date in Navajo history.

Artifact Description

POTTERY

The potsherds from all features at LA 4297 place it within the Gobernador Phase (Table 18). High frequencies of Dineta Utility and Gobernador Indented show that the site was occupied primarily by Navajos, and the polychrome pottery implies contacts with Pueblo Indians, probably refugees.

PROJECTILE POINTS (3)

One point was made of obsidian and has a tear-drop shape. It is 0.8 inches long, 0.55 inches wide, 0.1 inches thick and weighs 0.04 ounces. The shape and chipping are not like the Pueblo examples. A second point is triangular and made of quartzite. It, too, lacks notches or stem, but only the basal portion was recovered.

The third point is definitely a relic picked up from an archaic site. The size, 2.0 inches long by 1.0 inches wide, and weight of 0.21 ounces, is outside the range of points used by the Navajos or refugee Pueblos. The base of the point is concave, and there are side notches (Fig. 43 left).

TABLE 18
POTTERY TYPES BY LOCATION,
LA 4297, IN PERCENTAGES

Type	Hogan 1		Hogan 2	Rock Pile 1		Rock Pile 2
	Fill	Pit	Fill	Surface	Fill	Fill
Dinetah Utility	3.0	-	50.0	18.0	45.8	100.0
Gobernador Indented	94.8	100.0	50.0	76.4	50.0	-
Jemez Black-on-White	0.8	-	-	3.4	-	-
Gobernador Polychrome	-	-	-	1.1	4.1	-
Rio Grande glaze	-	-	-	1.1	-	-
Arboles Gray	1.5	-	-	-	-	-
Total Percent	100.1	100.0	100.0	100.0	100.0	100.0
Total Sherds	133	18	8	89	24	1

TABLE 19
STONE TYPES BY LOCATION, LA 4297

Type	Rock Pile 1
Obsidian	3
Jasper	1
Chert	5
Chalcedony	3
Petrified Wood	3
Total Specimens	15

TABLE 20
ARTIFACTS BY LOCATION, LA 4297

Artifacts	Hogan 1	Hogan 2	Rock Pile 1
Projectile Points	2	-	1
Archaic Point	-	1	-
Blade	-	-	1
Hammer	1	-	-
Scraper	-	-	1
Pottery Polisher	1	-	-
Total Specimens	4	1	3

BLADE (1)

A quartzite blade appears to have been leaf-shaped, but the base is missing. It is unstemmed and bifacially chipped.

SCRAPER (1)

A single scraper, of Pedernal chert, is nearly rectangular. Scraping use chips show along a straight side (Dittert, *et al.*, 1961, p.180).



Fig. 43. Chipped stone, LA 4297.

HAMMER (1)

An oval hammer is the only large tool from the site. One surface shows evidences of slight, temporary use as a mano, but the edges have been pecked and battered. The length is 3.1 inches, width 5.0 inches, and thickness 1.9 inches.

POTTERY POLISHER (1)

A flat pebble of porphyry shows polishing facets that probably resulted from use on ceramics. Its diameter is 2.6 inches and it is 0.4 inches thick.

Artifact Discussion

The presence of both Navajo and Pueblo ceramics on the site points to the Gobernador Phase. There are also a very few sherds of earlier Pueblo occupation, or else sherds picked up elsewhere and brought to the site.

The chipped stone at LA 4297 does not constitute a large enough sample to merit much discussion. Two of the projectile points do not resemble Pueblo forms, and may have been made by Nava-

jos. The third, an Archaic form, is definitely exotic and resembles forms reported by Hadlock from an Archaic site near Farmington (1962, Fig. 6, K,L).

Only one blade was recovered; and such tools as scrapers, knives, and gravers, usually found at Navajo sites, were not found. Other artifacts usually appearing infrequently --such as manos, metates, and abraders-- were not found.

On the basis of the artifacts, the site was not one of usual domestic activity. Almost all of the tools pertaining to domestic activity are absent. Apparently, the use of the site was principally for ceremonial sweat baths.

Architectural Age of the Site

Evidence implies a short occupation of the site, at most one or two generations. The sherd evidence dates this occupation sometime during the Gobernador Phase. Unfortunately, all the tree ring specimens are juniper, which cannot be dated.

TODOSIO ROCK SHELTER LA 4298

The site number LA 4298 is given to the two adjacent rock shelters on the west side of the Pine River in San Juan County, New Mexico (Fig. 29). The caves are situated at the base of a vertical cliff above a long steep talus slope, some 280 feet above the river valley, at an elevation of 6160 feet. The caves lie one above the other and have a vertical separation of about thirty feet. The larger lower cave was designated Shelter 1, and the smaller upper one, Shelter 2.

Both caves were formed by weathering of green shale lenses in the sandstone, and subsequent cantilever roof fall of huge blocks of sandstone. The slumping action of the talus below tended to permit the blocks from the cave floor to slide forward and downslope. Within the caves, surface manifestations indicative of human occupation included corn cobs, potsherds, perishable artifacts, and masonry walls.

Shelter 1 had deep stratified deposits, which were excavated in three levels. Shelter 2 had a shallow occupation level which was cleared as one unit. The upper two levels in Shelter 1 and the fill of Shelter 2 were dry deposits containing perishable materials. These levels were screened to obtain maximum recovery of these objects. Total excavation time was forty-two man-days for both shelters.

Shelter 1

The major cave is a large semilunar-shaped rock shelter, eighty-six feet in length and extending twenty-five feet under the overhang (Fig. 45).

The floored area of the cave averages fifteen to twenty feet in width and is further limited in area by the presence of ten large sandstone boulders fallen from the roof. The cave roof is irregularly stepped, exposing the area from which the rectangular sandstone blocks fell. Maximum height of the cave at the front is seventeen feet. At the rear the height diminishes to 7.6 feet.



Fig. 44. Shelter 1, LA 4298, during excavation.

The shelter supported two prehistoric occupations, a late Navajo occupation and an earlier Pueblo occupation. Because of the mixed nature of the deposits, it is difficult to determine the dividing line between the two occupations. Analysis of the artifacts that were present suggests that the dry portion of the cave, Levels 1 and 2, should

be referred to the Navajo occupation, and the wet layer, Level 3, possibly to the Pueblo occupation. These occupations and included features will be discussed separately from top to bottom of the deposits.

NAVAJO OCCUPATION (LEVELS 1 and 2)

The center front of the cave was covered with a layer of domestic sheep dung, 0.2 feet in thickness, which contained no cultural material. Below this was the upper dry level, 0-0.8 feet thick, which was characterized by many perishables and by Dinetah Utility pottery (Fig. 45).

This upper layer of dry material was irregular in depth, and filled the interstices between the fallen boulders. An arbitrary second level was designated for the fill between 0.8 and 1.2 feet. The latter also contained perishable material and Dinetah Phase sherds; consequently, for purposes of analysis, Levels 1 and 2 may be lumped together. Toward the rear of the cave, Level 2 reached the tops of a series of pits dug in the floor (Fig. 46). These pits appear to have been dug during the Pueblo occupation and partially re-used during the Navajo occupation. As a result, they will be described in the section to follow. Other features which may be assigned to the Navajo occupation include fire pits and a short masonry wall.

At the south end of the cave, a narrow aisle was formed between a fallen sandstone boulder and the rear wall of the cave. It is blocked by a wall built of selected sandstone blocks set in adobe mortar (Fig. 45). At the time of excavation, the wall stood to a height of 1.3 feet; adjacent to it was a log fragment which may have originally formed part of the structure. The original height of the wall cannot be estimated, but it may have been part of a small granary or storage unit.

A circular fire pit in the fill of Level 1 is hemispherical in profile (Fig. 45). In addition to this pit, six other burned areas were located on the floor. None of these has a definite outline; they seem to represent fire areas rather than formal pits.

INTERPRETIVE SUMMARY:

NAVAJO USE OF THE CAVE

A dry layer containing Navajo artifacts extended down to the bedrock floor in the rear portion of the cave. It suggests that prior to moving in the Navajo may have cleaned out the cave to some extent. The Navajo also partially cleaned out some of the earlier burial pits and re-used them for storage. Use of the cave thus included both habitation and storage.

PUEBLO OCCUPATION (LEVEL 3)

Level 3 consisted of the shale bedrock floor towards the rear of the cave, plus a layer of fill containing early Pueblo implements at the front of the cave (Fig. 45). Because this layer had been

subjected to moisture, it contained few preserved perishable remains.

The floor features consisted of several burial pits and four fire pits dug into the shale bedrock. In addition, four shallow depressions and one burned area were located on the floor. These pits and depressions were used for burial, fire, and storage.

The fill within the pits and the layer at the front of the cave consisted of damp soil stained with charcoal. Few artifacts other than grave goods were present.

Pits located during excavations were circular to oval in plan. In profile they ranged from shallow hemispherical to deep and slightly bell-shaped, having flat bottoms (Fig. 46).

In general, the pits are very similar and will not be described in detail individually.

Plans and sections of the pits suffice to document differences in form and size (Fig. 46). Included artifacts are listed in Table 21.

Remnants of adobe copings are of interest in Pits 1, 5, 7 and 8. These copings originally stood to an unknown height, and served to increase the storage area of each pit; they were all destroyed after the occupation. This destruction may have been done by the Navajo, who partially cleaned out the pits and used them for storage. The presence of human burials within some of the pits indicates a long time span for the occupation.

Pits 9, 10, and 11 appear to have been connected intentionally, some effort having been made to maintain the dividing walls between the pits (Fig. 48). This series of pits is inferred to have been a granary.

Six burials and an isolated human skull found in Pits 1, 2, 3, 4, 5, and 12 have, at the present writing, yet to be studied by a specialist. As a result, the cultural details will be reported here, but physical characteristics will be summarized only (Table 21).

Burial 4 consists of parts of two individuals in Pit 1. An isolated human skull was located at a depth of 2.0 to 2.5 feet. It is assumed that the entire skeleton was buried together and was partially removed by the Navajo when they re-used the pit. A second specimen (also designated Burial 4) recovered at a depth of 1.0 feet consists of the bones of a child less than six months of age.

Pit 2 contained scattered bone from a depth of 0.2 to 1.4 feet. These bones were tentatively identified in the field as those of a dog. At the present writing, this specimen is in the possession of a mammalogist. The scattering of the bone through the fill probably occurred because of Navajo re-use of the pit.

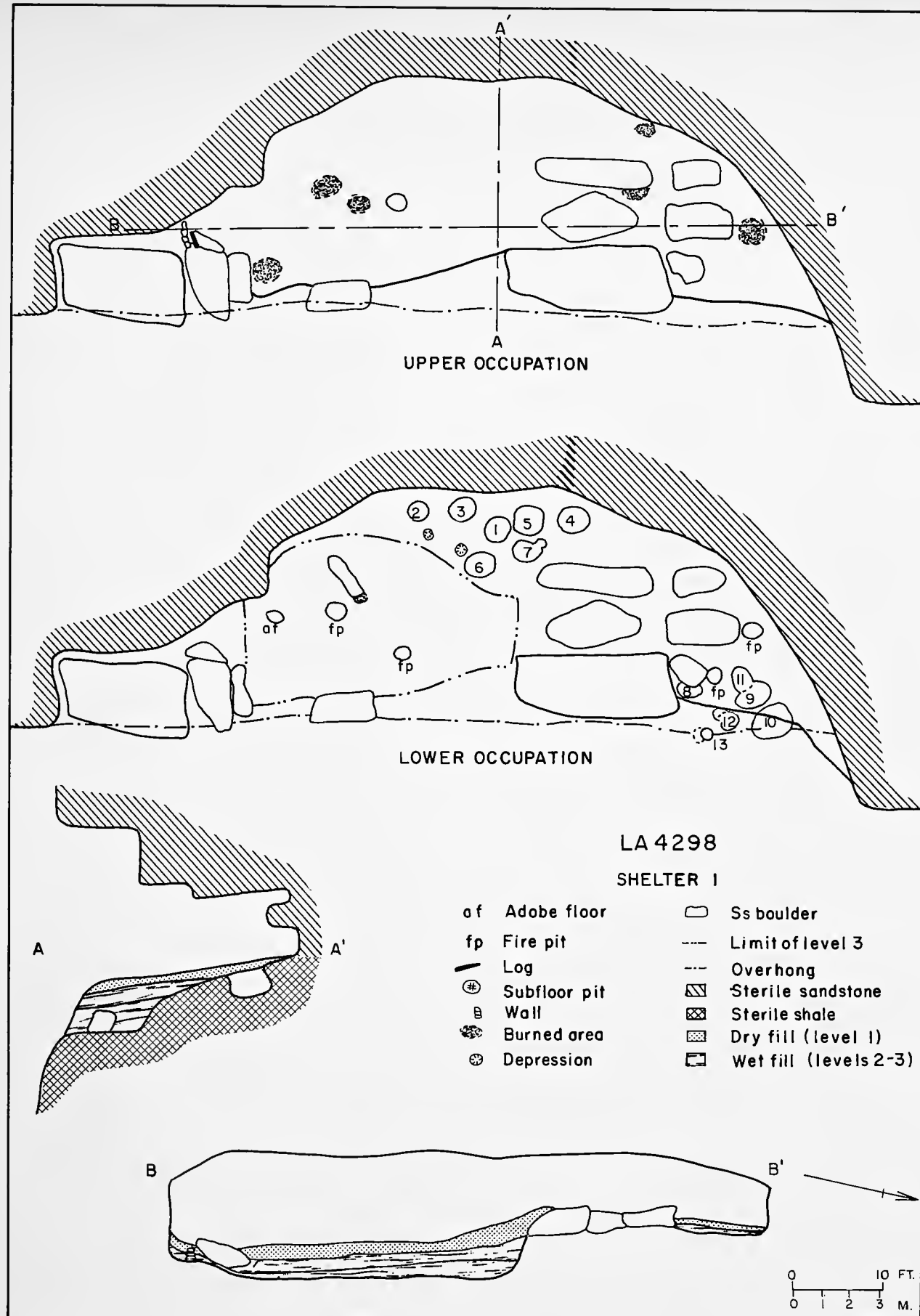


Fig. 45. Plans and profiles of Rock Shelter, showing upper and lower occupations LA 4298.

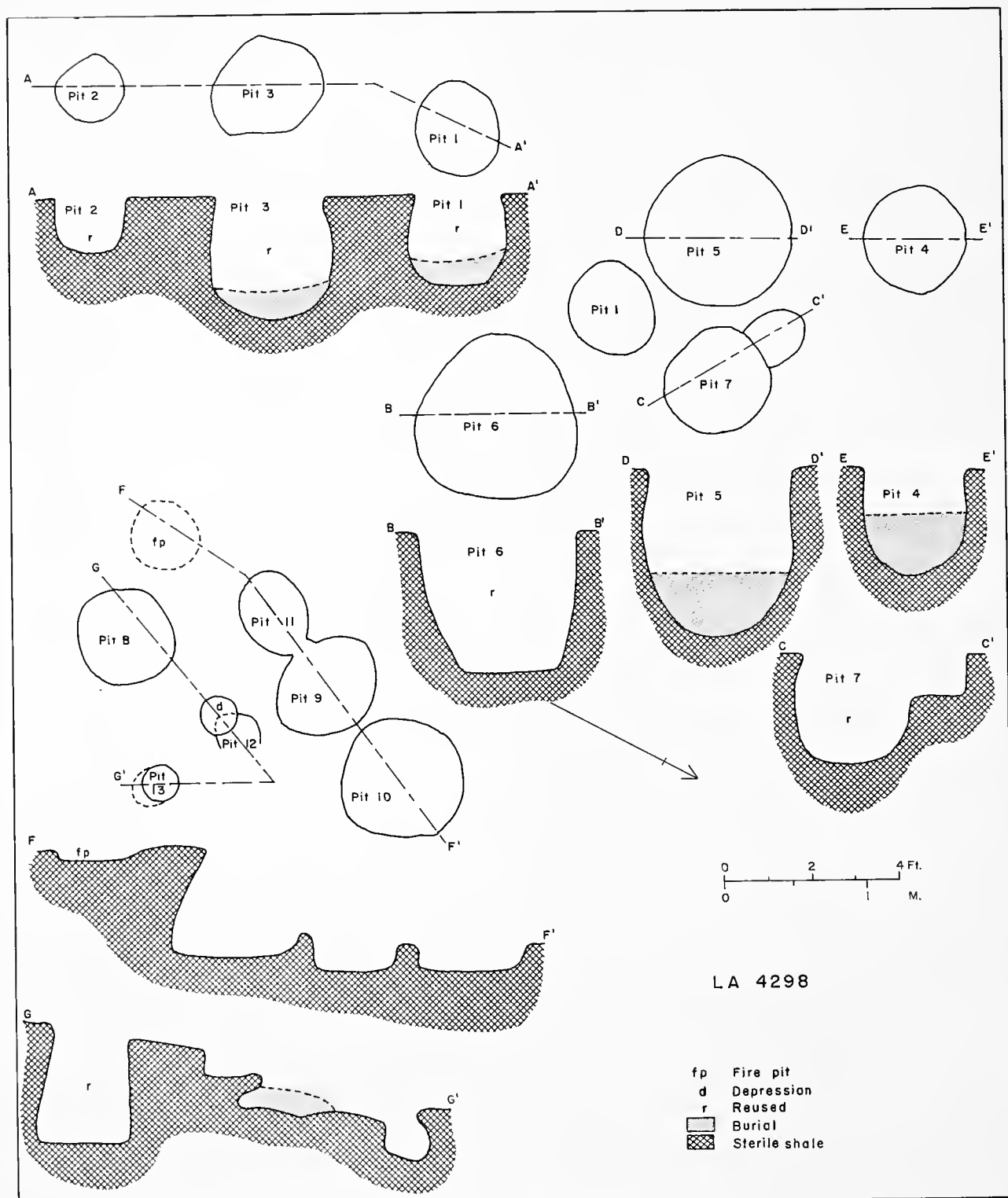


Fig. 46. Plans and profiles of Pits 1-13, LA 4298.

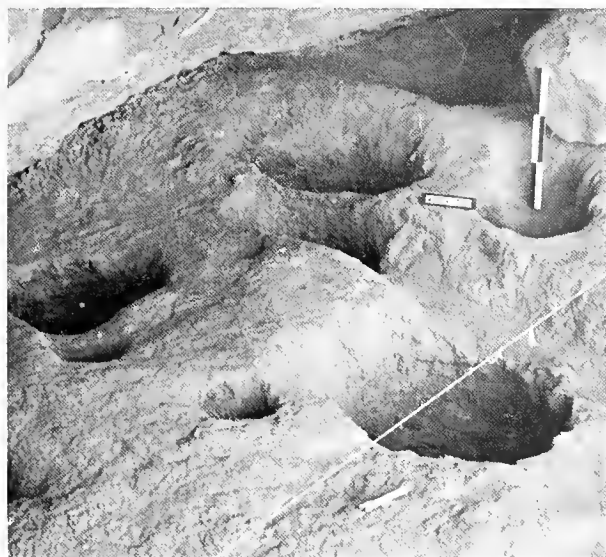


Fig. 47. Pits 1,2,4,5,6, and 7, LA 4298.



Fig. 48. Pits 8-13 with Burial 3 in Pit 12, LA 4298

TABLE 21

BURIAL PRACTICES, LA 4298

ATTRIBUTES	BURIAL NUMBER				
	1	2	3	4	5
Locus	Pit 4	Pit 5	Pit 12	Pit 1	Pit 3
Phase	?	Sambrito	Piedra	?	Sambrito
Age Group, years	35-39	35-39	6-9	0-1	child
Sex	male	male	female	?	?
Number of Bodies	1	1	1	1	1
Body Placement					
Position	left side	right side	back	?	?
Orientation	N-S	E-W	E-W	?	?
Facing	E	N	S	?	?
Flexion	full	full	full	?	?
Depth below surface, feet	1.8	4.2	3.0	2.0-2.5	3.0-3.7
Accompanying artifacts					
Pottery	-	Sambrito Brown	Bluff B/R	-	Sambrito Brown
Ornaments	-	Stone Plaque	-	-	-
Other	Pipe, Matting	Pipe, Matting	Feather Robe	-	Bone awl Basketry

The burial in Pit 3 (Burial 5) consisted of a number of tiny fragments of human bone at a depth of 3.0 to 3.7 feet. These are probably the remains of a child four to six years of age. Artifacts associated with the burial include a bone awl, Sambrito Brown pottery, and fragments of coiled basketry. The bones had been disturbed by the Navajo.

The most complete burial recovered (Burial 1) was in Pit 4 at a depth of 1.8 feet. This skeleton of a small adult, probably male, was in an extreme flexed position, lying on the left side and back (Fig. 49). The legs are in a side position and the torso was twisted into a quartering back position. A number of large sandstone slabs, thrown into the pit following burial, were resting directly on the bones. These stones had been thrown in with some force, as they had fractured the skull, both humeri, ribs, pelvis, right femur, and right tibia. The body had been covered with a juniper bark robe, which, at the time of excavation, was decayed to such a point that it could not be recovered.

A second adult burial, in Pit 5, was similar to that in Pit 4. The body (Burial 2) lay in an extreme flexed position on the side and back, the head facing to the west. The legs had been broken when the body was placed in the grave, and the skull had been crushed with a rock. The body had been covered with a juniper bark matting, which consisted of strips of bark woven in an over-one, under-one plait. Offerings included a calcite plaque, two small Sambrito Brown pots, and a clay pipe.

Pit 12 (Burial 3) contained another child burial, unique among the burials in that it had been located in an area protected from moisture. The bones were those of a child of four to six years old, which had been exposed until most of the flesh had been removed. The bones and half of a pottery bowl were then wrapped in a feather cloth robe and placed in the burial pit (Fig. 50).

SUMMARY

The cave was formed by differential weathering of a shale lens in the sandstone, followed by a cantilever rock fall. Pueblo people occupied the cave during the Sambrito and Piedra Phases, using the space in Level 3 for habitation and disposal of trash. The rear of the cave was taken up by the numerous pits used for burial and storage. Burials were covered with a layer of rock and then the pits were partially backfilled with the excavated shale. The site was abandoned.

Four fire pits are dug into the sterile shale floor of the cave. These pits are circular in shape, hemispherical in cross-section, and unlined. Diameters range from 1.7 to 2.5 feet; the average depth is 0.3 feet.

The Navajos re-occupied the cave, probably during the Dinetah Phase. The cave was cleaned out to some degree, many of the pits



Fig. 49. Burial 1 in Pit 4, LA 4298.



Fig. 50. View of Burial 3 in Pit 12, LA 4298.

being re-excavated, resulting in the disturbance or removal of some burials. The pits were re-used for the storage of grain in pottery jars. A wall was built in the south end of the cave to form a storage area. The cave was abandoned again, probably early in the Gobernador Phase.

Adobe copings around pits were destroyed, perhaps deliberately at the time of abandonment. Almost no rock fall has occurred since the Navajo occupation. The extent to which the Navajo disturbed the Pueblo burials and re-used the pits suggests that their characteristic fear of the dead was considerably less developed at that period.

Shelter 2

This is a semi-lunar rock shelter formed in the same fashion as Shelter 1. It is 43 feet in length, 17.5 feet in width, and 7.3 feet in height. The floor area of the cave is narrow and sloping, affording little usable space for habitation.

The shallow fill was dry and contained perishables. It averaged 0.2 to 0.3 feet in depth. Occupation of the cave was limited to the Navajo period. The major feature is a short masonry wall, built on the ledge at the south end of the shelter (Fig. 51).



Fig. 51. View of Shelter 2, LA 4298, from the south. Note masonry wall in left center.

This wall is semi-lunar in form and abuts against the rear of the cave to form a small low room. Although the wall was badly tumbled when excavated, it originally must have reached the roof of the cave at that point, 4.6 feet above the floor. The masonry blocks are selected, unshaped sandstone slabs.

A burned area on the bedrock floor within the room represents the former presence of a hearth.

Artifact DescriptionPOTTERY

The Navajo period ceramics are almost entirely Dinétah Utility and Gobernador Indented. A single sherd of Gobernador Polychrome indicates occupation during the Gobernador Phase. Restorable vessels included one Dinétah Utility jar, originally about 8.5 to 9.0 inches high and 8.3 inches in diameter. One of Gobernador



INCHES	4
CM	4 6 8 10

Fig. 52. Gobernador Indented jar, LA 4298.

Indented is 11.4 inches high and 10.6 inches in diameter (Fig. 52).

Early Pueblo pottery is represented by two small jars of Sambrito Brown and a large fragment of a Bluff Black-on-Red seed jar. The Sambrito jars are both 5.4 inches high, and are 3.8 and 5.2 inches in diameter. The vessels are brown in color, the bodies are globular, and the necks flare to the same diameter as the bodies. The paste is fine and soft, and the exteriors are semi-polished (Fig. 53). All occurred with early burials.

PROJECTILE POINTS (3)

Three types were represented: Triangular, corner-notched with a straight stem; triangular, corner-notched with expanding stem; and unstemmed leaf shaped (Dittert, *et al.*, 1961, Fig. 43, o,n,a). The notched types were identical in size: 0.9 inches long, 0.5 inches wide, and 0.1 inches thick. Both specimens weigh 0.03 ounces. The unstemmed type is not complete.

BLADE (1)

One broken specimen of quartzite is a slender ovate form, bifacially chipped (Fig. 55).

TABLE 22
POTTERY TYPES BY LOCATION, LA 4298, IN PERCENTAGES

Type	Shelter 1							Shelter 2	Total Sherds
	Level 1	Level 2	Level 3	Pit 3 Lower	Pit 5 Upper	Pit 5 Lower	Pit 12		
Dinetah Utility	77.3	100.0	100.0	-	100.0	-	-	100.0	195
Gobernador Indented	22.1	-	-	-	-	-	-	-	32
Gobernador Polychrome	0.7	-	-	-	-	-	-	-	1
Sambrito Brown	-	-	-	100.0	-	100.0	-	-	42
Bluff B/R	-	-	-	-	-	-	100.0	-	1
Total Percent	100.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-
Total Sherds	142	51	6	20*	13	22*	1	16	271

*Single Vessel

KNIFE-GRAVER (1)

One edge of this chert flake is a bifacially chipped cutting edge. A corner has had a few chips removed to produce a graver point. The point is polished from use.

GRAVERS (2)

Rough flakes with pointed ends were used as gravers, without modification. One is of jasper and one is of Pedernal chert. (Dittert, *et al*, 1961, Fig. 47, c).

UTILIZED FLAKES (4)

Flakes of chalcedony, common chert, and Pedernal chert were used for scraping. Use is indicated by chips removed from near the edge of one face by scraping. No intentional pressure chipping is present.

HAMMERS (6)

The materials used were equally divided between quartzite and basalt, and all specimens are river-worn cobbles. The longest dimensions ranged from 3.1 to 4.1 inches. The smallest dimensions ranged from 1.5 to 2.4 inches. Weights ranged from 11.44 to 20.37 ounces. Four specimens were used terminally and two specimens were used on their edges.

CHOPPERS (5)

Four of the choppers are of basalt and one is of quartzite. All specimens are flaked from



Fig. 53. Sambrito Brown jar, LA 4298.

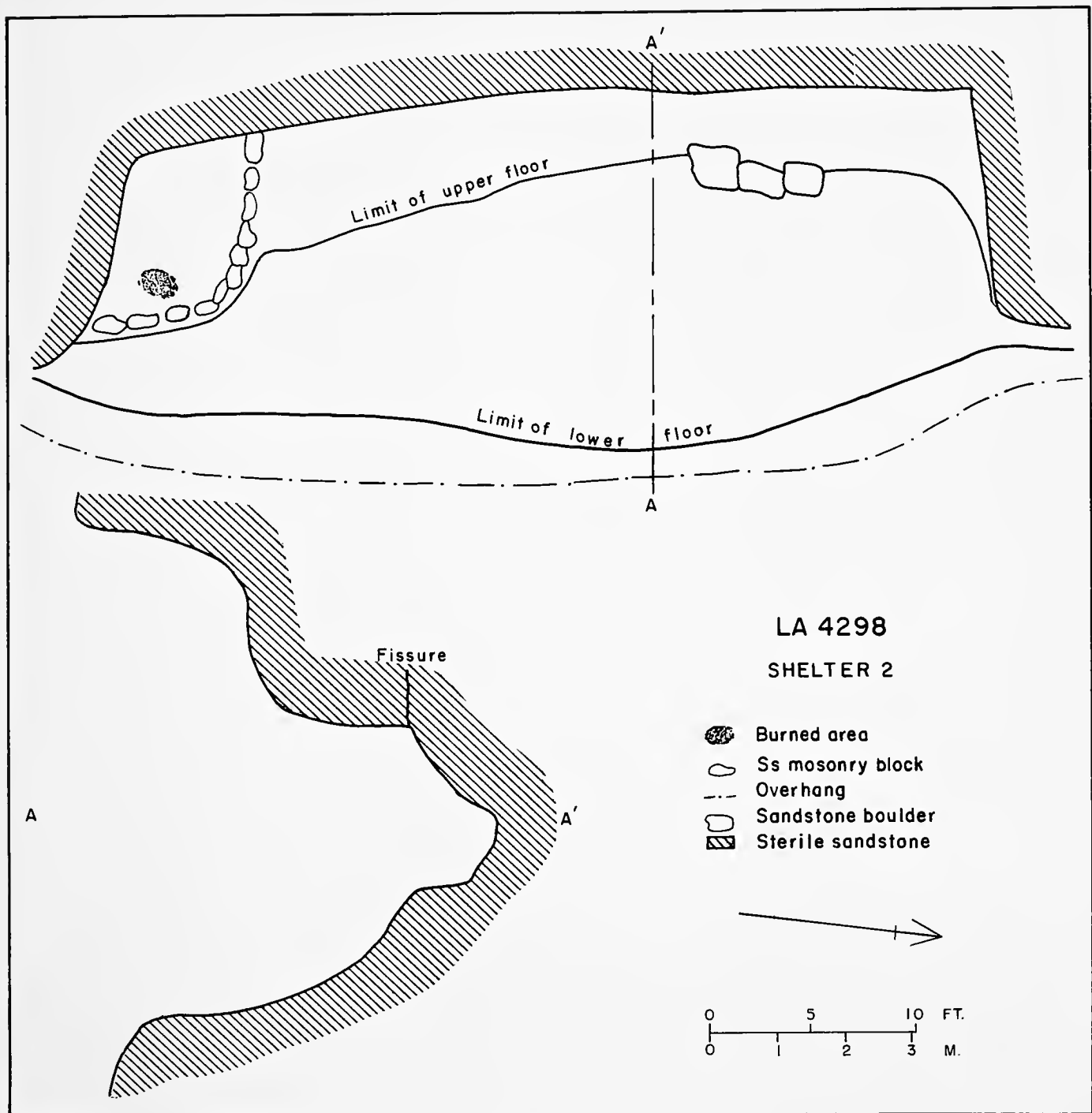


Fig. 54. Plan and profile of Shelter 2, LA 4298.

stream-worn cobbles, three bifacially and two unifacially. Weights range from 4.62 ounces to 22.59 ounces. Cutting edges vary from 57° to 88°.

MANOS (9)

Seven of the manos are of the one-hand type, and all but one are of quartzite. The remaining

specimen is of igneous olivine. Lengths vary between 2.2 inches and 4.2 inches; widths between 3.0 inches and 5.4 inches. Five of the manos show traces of ground azurite or malachite burnished onto the surface.

Two specimens are of the two-hand type used in trough metates. Lengths are from 4.1 to 4.7 inches and widths from 6.5 to 7.6 inches.

TABLE 23

STONE TYPES BY LOCATION,
LA 4298, SHELTER 1

Type	Level 1	Level 2
Gneiss	-	1
Felsite	-	1
Quartzite	3	8
Slate	1	-
Igneous	1	-
Basalt	-	1
Chert	2	-
Chalcedony	2	1
Total Specimens	9	12

TABLE 24

IMPERISHABLE ARTIFACTS
BY LOCATION, LA 4298

Artifact	Surface	Cave front	Level 1	Level 2	Level 3	Pit 3	Pit 4	Pit 5	Pit 13
Projectile Points	-	-	-	1	1	-	-	1	-
Blade	-	-	1	-	-	-	-	-	-
Knife-graver	-	-	-	1	-	-	-	-	-
Scraper-gravers	-	-	-	1	1	-	-	-	-
Scrapers	-	-	3	-	3	-	-	-	-
Gravers	-	1	1	-	-	-	-	-	-
Choppers	-	-	2	1	2	-	-	-	-
Hammers	-	-	-	4	2	-	-	-	-
Manos, one-hand	-	2	-	-	-	3	1	-	1
two-hand	-	1	1	-	-	-	-	-	-
Metate, slab	1	-	-	-	-	-	-	-	-
Abraders	-	-	-	2	-	-	-	-	-
Pipes, stone	-	-	-	-	-	-	1	-	-
clay	-	-	-	-	-	-	-	1	-
Plaque, stone	-	-	-	-	-	-	-	1	-
Mica	-	-	1	1	-	-	-	-	-
Awls, bone	1	-	-	2	-	-	-	-	-
Chipping tool	-	-	-	1	-	-	-	-	-
Total Specimens	2	4	9	14	9	3	2	3	1



Fig. 55. Artifacts from LA 4298

FIRE DRILL (1)

A small wooden cylinder shows a scorched rounded end. The other end is tapered as if it had been mounted as a compound drill shaft (Hester, 1962, Fig. 32,e). Two fire hearths that could have been used with a drill of this form were found.

TABLE 25

PERISHABLE ARTIFACTS
BY LOCATION, LA 4298

Artifacts	Surface	Level 1	Level 2	Level 3	Pit 3	Pit 5	Pit 10	Pit 12
Compound arrow	-	1	-	-	-	-	-	-
Fire hearths	-	1	-	1	-	-	-	-
Fire drill	-	1	-	-	-	-	-	-
Digging stick	-	2	-	-	-	-	-	-
Spatula	-	1	-	-	-	-	-	-
Carved wood	-	-	1	-	-	-	-	-
Gourd dipper	-	-	2	-	-	-	-	-
Juniper berry beads	-	10	-	-	-	-	-	-
Wooden beads	-	-	2	-	-	-	-	-
Cane cylinder	-	1	-	-	-	-	-	-
Basketry	-	-	-	-	1	-	-	-
Matting	-	-	-	-	-	1	-	-
Sandals, cupped heel	1	4	5	-	-	-	-	-
Human hair	-	-	-	-	1	-	-	-
String	-	-	2	-	-	-	1	-
Pot rest	-	1	-	-	-	-	-	-
Whisk broom	-	1	-	-	-	-	-	-
Cattail	-	1	-	-	-	-	-	-
Yucca thongs	-	1	4	-	-	-	-	-
Bark, woody	-	3	-	-	-	-	-	-
Leather	-	-	1	-	-	-	-	-
Feather robe	-	-	-	-	-	-	-	1
Total Specimens	1	28	17	1	2	1	1	1

GOURD DIPPERS (2)

The fragments are small parts of dippers made from bottle gourds. Rims were well defined on both specimens, but no decorations could be detected.

JUNIPER BERRY BEADS (10)

The beads were formed by grinding off both ends of each seed, and they were strung on two-ply, Z-twist, yucca string (Hester, 1962, Fig. 32,h).

WOODEN BEADS (2)

Small wooden cylinders, 0.8 to 1.0 inches long and 0.2 to 0.3 inches in diameter, were pierced longitudinally. One of these is painted black on each end and stained yellow. The other is painted black and green (malachite) on the ends as well as on the sides (Hester, 1962, Fig. 32, i,g).

CUPPED-HEEL SANDALS (10)

All examples appear to be identical in weave and form. They are flat twilled sandals of *Yucca-bacata*, characterized by a gathered section designed to cup the heel. Lengths are between 9.0 and 10.6 inches; widths vary from 4.3 to 5.0 inches. Four of the sandals had been provided with circumferential loops of yucca cord, which served as eyes for split yucca laces. Lacings crossed the instep as well as the Achilles tendon (Fig. 56).



Fig. 56. Cupped-heel sandals, LA 4298.

One variant had only a simple split yucca thong which apparently crossed over the three central toes of the foot. Others appear to have had the lacings removed after the sandal had worn through (Hester, 1962, Fig. 44).

COMPOUND ARROW (1)

A piece of hardwood served as the nock of a compound arrow. It is 8.4 inches long and 0.2 inches in diameter. One end was carved into a nock, and the other tapers to fit into a cane shaft. There is no evidence of fletching (Fig. 55).

DIGGING STICKS (2)

Both tools were made from unimproved sticks of hardwood, and are fragmentary. Each is roughly pointed and the points are worn from use. Diameters are 0.5 to 1.3 inches.

BONE AWLS (3)

Long bones of mammals, possibly deer, were used. Little attention was paid to smoothing the shafts, and the tips are straight sided. Lengths vary from 3.1 to 5.6 inches. All specimens were split before shaping and one retains the articular end (Fig. 57).



Fig. 57. Bone tools, LA 4298.

CHIPPING TOOL (1)

A heavy bone splinter from a large mammal was sharpened to a semi-sharp point at each end. It is 3.8 inches long, 0.6 inches wide, and is poorly smoothed. Small nicks and cuts near the tip suggest use as a chipping tool (Fig. 57).

TEXTILE FRAGMENTS

Several kinds of materials had been woven, knotted or twisted, but were too fragmentary to permit classification. A small bit of textile of over-one, under-one weave employed human hair. Yucca strips were knotted in various ways as were short lengths of yucca twine. Curved sticks appear to be rim remnants of winnowing trays.

VEGETABLE MATERIALS

Both *Yucca bacata* and *Yucca glauca* were found in quantity. Barks and sticks of mountain mahogany, cottonwood, Utah Serviceberry, and juniper were less frequent. Several fragments of cornhusk were knotted or folded as if they had been parts of artifacts. Strips of cattail were also recovered. A bundle of snakeweed twigs appears to have been used as a whisk broom. Another bundle of twigs was rolled into a doughnut shape, apparently for use as a pot rest.

STONE PIPE

A small "Cloudblower" pipe of marble was equipped with a bone bit. The diameter of the bowl is 1.0 inches and the length is 2.8 inches. The object was found in a Pueblo Period grave which is much older than the Navajo occupation (Fig. 58, left)

CLAY PIPE

The small, conical clay pipe measures 2.1 inches long and 1.0 inches in diameter. It is well-polished and brown in color. The pipe was in a Sambrito Phase grave with a jar of Sambrito Brown (Fig. 58, right).

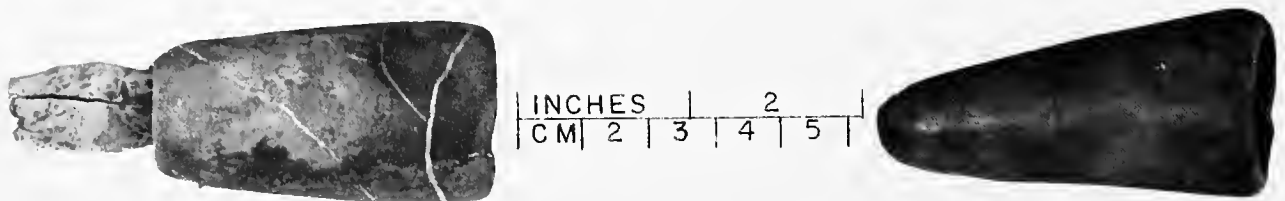


Fig. 58. Pipes, LA 4298.

STONE PLAQUE

Although it is large and heavy, the travertine carving probably was used as a breast ornament. It is curved in cross-section, rectangular in outline and has rounded corners. Three holes were drilled near one edge. The length is 4.9 inches, the width 4.2 inches and the thickness 0.3 inches. It was found in a Sambrito Phase grave with a jar of Sambrito Brown.

BASKETRY

The fragment is in poor condition, but is coiled on a three-rod and bundle foundation. The type of stitching could not be determined. It was associated with a Sambrito Phase burial.

FEATHER ROBE

The robe, consisting of yucca twine cords wrapped with down feathers, is of a form well known from cave sites in the Southwest. This particular robe is so fragile, and so tightly wrapped about the remains of a Piedra Phase child, that it cannot be unfolded. A drawing of the weave and selvage is shown as Figure 59.

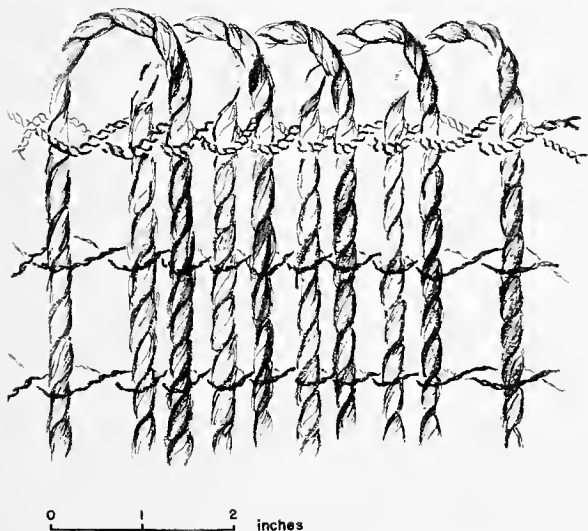


Fig. 59. Detail of feather robe, Burial 3 in Pit 12, LA 4298

LA 4299 is a rock shelter high on the west side of the Pine River Canyon in San Juan County, New Mexico. Because of the limited amount of fill within the cave, excavation required only four man-days, although the fill was screened for perishables.

The cave situation is at an elevation of 6140 feet, 260 feet above the floor of the canyon at the juncture of a vertical sandstone cliff and a steep talus slope. Weathering of the sandstone

Artifact Discussion

The pottery from LA 4298 consists of sherds and restorable vessels from the trash left by the Navajos, as well as pots left with early Pueblo burials. Both periods are divisible into phases according to the types of pottery represented.

The earliest use of the shelter was primarily for burial, as far as can be determined. During the Sambrito Phase (A.D. 400-700), and also during the Piedra Phase (A.D. 850-950), burials were placed in pits dug into the floor. Some domestic activities also may have taken place. Later, during Navajo occupation, most of the earlier remains outside the pits were removed.

Both the Dinetah and Gobernador Phases are represented. From ceramic and artifact associations, Level 1 is classified as Gobernador Phase and Level 2 as Dinetah Phase. Both levels contained sherds of Dinetah Utility. A single sherd of Gobernador Polychrome was found in Level 1.

Because the Navajos apparently made a practice of recovering and using stone tools from former occupations, it is almost impossible to determine the origin of many artifacts. Even though certain artifacts were recovered from the dry Navajo trash, no certain period identification can be made. Some of the chipped stone tools and the one-hand manos are in this category.

The perishables are almost certainly Navajo because the lower stratum beneath the Navajo trash had been wet and almost no perishables survived. Of particular interest are the yucca sandals. Although the twilled weave and general shape are familiar (Morris 1919, pp. 19-29), the gathered heel and complex lacing are distinctive.

LA 4299

was followed by rock fall from the roof. The cave thus formed is difficult of access and commands an excellent view of the river valley. Under the overhang, the shelter is forty-seven feet in length and as much as twenty-three feet in width. The usable floor width is twenty feet, and the ceiling height varies from one to thirteen feet. Surface manifestations within the cave include three portions of masonry walls which form three rooms. Because the floor of the cave slopes irregularly and steeply, little space was available for habitation (Figs. 60, 61, and 62).

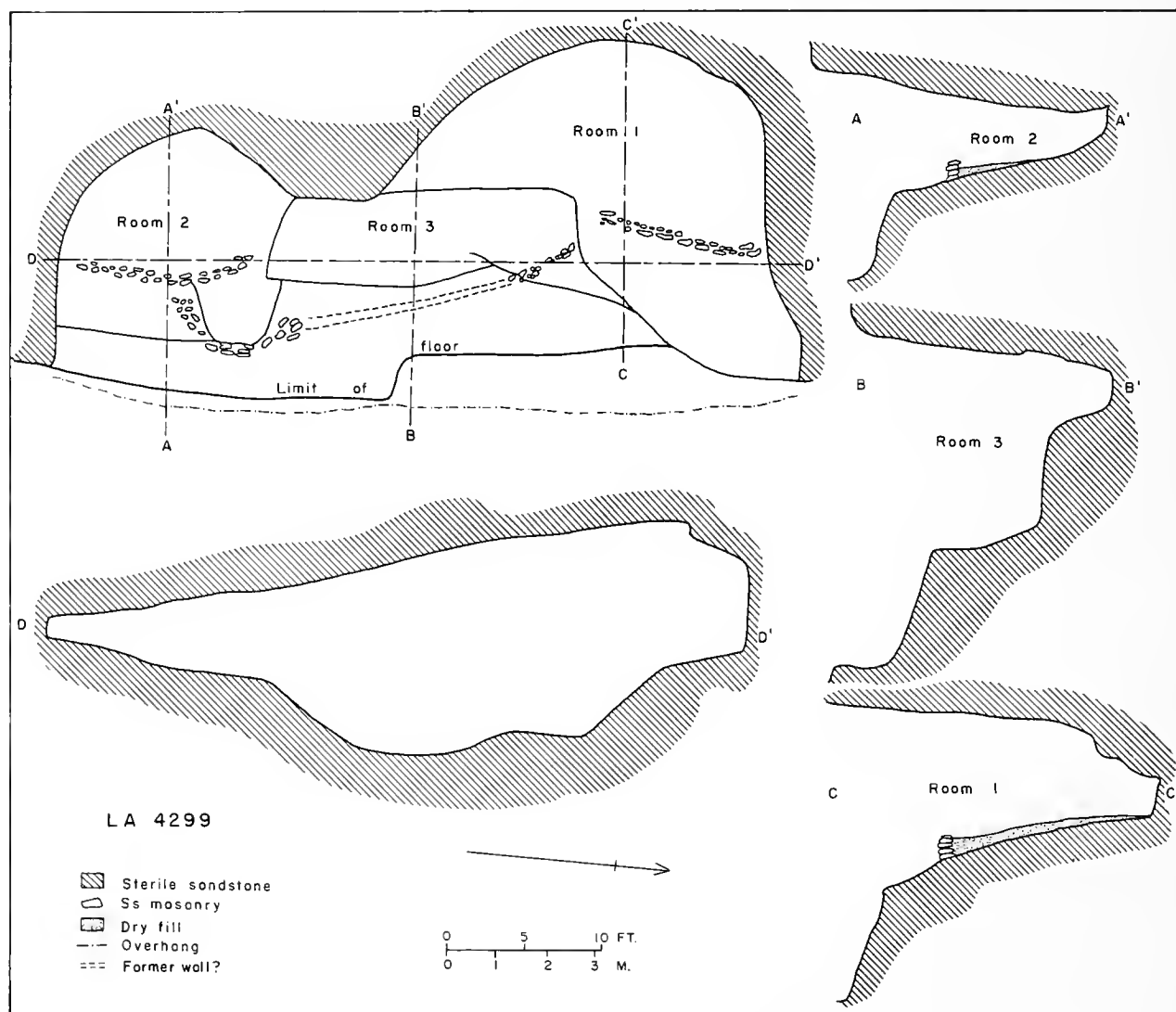


Fig. 60. Plan and profiles of LA 4299. The major feature of the site is the extreme irregularity of the floor. Note the contrast of Profiles B-B' and D-D' with Profile C-C'.



Fig. 61. View to the north showing remains of Room 1, LA 4299.



Fig. 62. View to south showing remains of walls forming Rooms 2 and 3, LA 4299. Note adobe blocks in wall of Room 2 and steepness of the canyon wall.

Architecture

Construction was limited to three walls, which follow the contours of the semi-level floor to form rooms. These walls are unique in their construction, which differs from that of the other sites in the Reservoir.

Two forms of wall construction are present at the site (Fig. 63). Type 1 walls are coursed and are constructed of selected sandstone slabs set in adobe mortar. This is typical of other Navajo Period sites in the Reservoir, except that here much more adobe mortar was used.

The Type 2 wall differs from all other Navajo structures in the Reservoir. Small adobe bricks of a rounded rectangular form are set in courses alternating with courses of thin sandstone slabs.

Walls in all three rooms are poorly preserved, reaching a maximum height of 1.7 feet. Original height of the walls cannot be estimated.

Artifact Description

None of the artifacts listed in Table 26 implies domestic use of the cave. Two stone tools, used for carving, and twelve bits of carved wood suggest that the shelter was used exclusively for preparing ceremonial paraphernalia.

The bits of wood are mostly remnants, apparently cut off and discarded. One carving is grooved along its length and notched at the ends. It resembles no known tool, and is probably a ceremonial object (Hester, 1962, Fig. 32, j,k).

Basketry impressions on adobe probably were made by a carrying basket that was used to transport the adobe. The basket was coiled, but the impressions are too poorly preserved to permit measurements.

No utility pottery, artifacts associated with preparing food, nor any of the usual tools related to household activities were found except a fragment of a digging stick. It has a straight shaft and a rounded point.

Age of the Site

On the basis of the sherds that were present, the occupation is Late Gobernador Phase. The presence of two different masonry styles implies two different occupations. The absence of ceramics attributable to an earlier occupation may be due to the accident of preservation. If in fact two separate occupations are represented, they probably are not widely separated and may both be assigned to the Gobernador Phase.

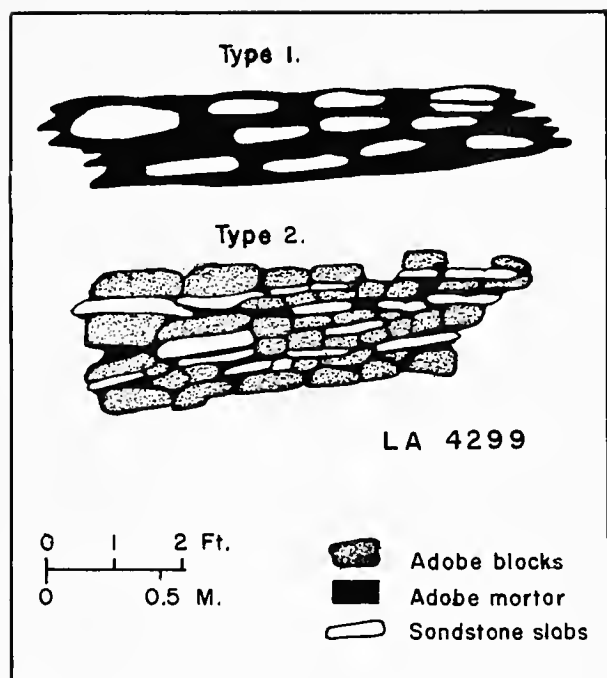


Fig. 63. Details of wall construction, LA 4299, a, Type 1 masonry used in Rooms 1 and 3; b, Type 2 masonry used in Room 2.

TABLE 26
ARTIFACTS BY LOCATION, LA 4299

Artifact	Room 1	Room 2	Room 3
Knife-scraper	-	-	1
Scraper-graver	1	-	-
Worked stick	1	-	-
Digging stick	-	-	1
Carved wood	10	1	1
Corn husk	1	-	-
Adobe, basket Impressions	1	-	-
Total Specimens	14	1	3

SUMMARY

The three rock shelters and an open site located in the Pine River Section of the Navajo Reservoir described in this chapter were selected for excavation because they gave promise of documenting the nature of the Navajo remains in this portion of the Reservoir, and because they possessed perishable materials.

Generalizations to be drawn from this sample of sites are as follows: 1) The upper Pine River valley was in-

habited by a relatively small number of people during Gobernador Phase. 2) These peoples included both Navajos and Pueblo refugees. 3) Cave sites were used for habitation, storage, and possibly ceremony. 4) The major reason for the limited population was probably the limited farm land available. 5) The cave sites are defensive in nature, suggesting that they were occupied soon after the Pueblo Revolt. 6) A single family may have utilized more than one site during the year.

CHAPTER V

SUMMARY OF ARCHITECTURE

Tables 27 and 28 summarize the occurrence of architectural elements by excavation feature and by site. Meaningful analysis of these tables is dependent in large part upon an understanding that the sample was selected in a deliberate

attempt to excavate sites of each type identified in the basic 1959 survey and, consequently, is extremely variable, little repetition of data occurring. In spite of this, certain patterns are discernible.

SITE TYPES

Site types excavated include a hogan village, a multiple-unit hogan site, two pueblitos situated on large boulders, and five rock shelters. Each of these site types will be summarized in terms of patterns and variables.

Hogan Village

Architectural features present within the village include hogans, a ramada, stone metate rests, sub-floor cooking and storage pits, fire pits, and hearths. A basic hogan pattern may be identified as an oval to circular floor plan, featuring a central fire pit, and having sides and roof in a conical form resulting from the leaning of juniper poles from the perimeter to three interlocked support posts. Features occasionally present in hogans include an extended entry way, sub-floor cooking and storage pits, loom posts, and vertical roof support posts.

In addition to the hogan, a large ramada had been constructed to afford a protected outside work space. Within this area were fire pits and a metate rest, suggesting that a major use of this area was food preparation. Trash was not concentrated in a particular area nor in any particular orientation.

Multiple-Unit Open Site

One site in this category, LA 4297, was excavated. Features include a forked-stick hogan and a sweat lodge. Within the hogan, features are identical to those in the hogan village. An isolated fire pit indicates that some domestic use was made of the area outside the hogan. The sweat lodge is a small

forked-stick hogan, having a floor depression to hold the hot rocks. Two piles of fire-cracked rock represent the discarded rocks and charcoal cleaned from the sweat lodge. Because this structure is unique among the sites excavated, no comparative data are available.

It is assumed that other multiple-unit open sites located on survey would have a different association of features.

Pueblitos

Two small masonry structures, each on top of an isolated boulder, are identical in masonry style, room size, room shape, and in utilization of all of the space on top of the boulders. Variable features include a side entryway, workspace on the ground adjacent to the boulder, mealing bin, hearth, and a masonry room abutting the boulder.

Rock Shelters

Rock shelters are all similar in shape because of geological conditions of formation, but vary in size. Use of these includes both habitation and storage. Interior features are limited to masonry walls, fire pits and hearths. The masonry style, with one exception at LA 4299, is identical to that of the pueblitos, including the contouring of walls to follow irregularities in the floor. Sub-floor pits from the Sambrito and Piedra Phase occupations were reused for storage during the Navajo occupation. One isolated shelter of small size was walled up and used for cremation burial. Trash was scattered about the rock shelters in no particular pattern.

TABLE 27
ARCHITECTURAL SUMMARY BY STRUCTURE

Site and Feature	Interior Features								Exterior Features						Size in Feet				Number of Rooms	Wall Height	
	Shape	Hearths	Fire Pits	Post Holes	Roof Supports	Sub-floor	Pits	Cooking Pits	Entryway	Metate Rests	Floor contact	Mealing Bins	Burials	Foundation Stones	Phase	Length	Width	Depth			Walls
LA 4199	oval	-	-	1?	-	-	-	-	-	-	2	-	-	-	Piedra	8.3	7.5	0.6	-	1	-
Surface structure	oval	1	-	-	X	-	-	-	-	-	3	-	-	-	Gob.	14.0	11.0	0.3	-	1	-
Hogan 1	oval	-	-	-	-	-	-	-	-	1	-	-	-	-	Gob.	1.6	0.9	0.5	-	-	-
Metate Rest 1	oval	-	-	-	-	-	-	-	-	-	-	-	-	-	Gob.	1.75	1.25	0.4	-	-	-
Pits	oval	-	-	-	-	2	-	-	-	-	-	-	-	-	Gob. ?	-2.0	14.8	0.4	-	1	-
Hogan 2	oval	-	1	1?	6	1	1	1	1	-	1	-	-	-	Gob.	5.6	12.0	-	-	-	-
Ramada	trapezoid	-	1	2.5	-	-	-	-	-	1	-	-	-	-	Gob.	12.5	12.0	0.3	-	1	-
Hogan 3	oval	-	1	-	7	-	-	-	-	-	-	-	-	-	Gob.	1.8	1.5	0.4	-	-	-
Fire pit 2	oval	-	1	-	-	-	-	-	-	-	-	-	-	-	Gob.	18.3	14.6	0.6	-	1	-
Hogan 4	rect.	1	-	16	16	1	1	1	1	-	2	-	-	2	Gob.	11.0	10.0	0.3	-	1	-
Hogan 5	oval	1	-	3	-	1	-	-	-	-	-	-	-	-	Gob.	11.0	11.0	1.3	-	-	-
Cairn	circ.	-	-	-	-	-	-	-	-	-	-	-	-	-	Rosa ?	39 & 46.0	13 & 13.5	5 & 8.0	-	-	-
LA 4411 - Rock shelter	semi-lunar	-	-	-	-	-	-	-	-	-	-	-	-	-	Gob.	22.8	12.0	-	X	2	1.6
LA 4314 - Pueblito	semi-rect.	2	-	-	3	-	-	-	1	-	1	-	-	-	Gob.	15.0	15.0	0.5	-	-	-
LA 4312 - Trash area	?	-	-	-	-	-	-	-	-	-	-	-	-	-	Gob.	30.5	12.0	-	X	3	1.4
LA 4331 - Pueblito 1	semi-rect.	1	-	-	X	-	-	-	-	-	-	-	-	-	Gob.	30.5	12.0	-	X	3	1.4

TABLE 27 -- continued

Site and Feature	Interior Features							Exterior Features							Size in Feet				Number of Rooms	Wall Height	
	Shape	Hearths	Fire Pits	Post Holes	Roof Supports	Sub-floor Pits	Cooking Pits	Entryway	Metate Resists	Floor contact	Artifacts	Mealing Bins	Burials	Foundation Stones	Length	Width	Depth	Walls			
Pueblo 2	rect.	-	1	-	X	-	-	-	-	-	-	-	-	-	Gob.	12.2	9.3	-	X	1	2.5
Trash area 1	oval	-	-	-	-	-	-	-	-	-	-	-	-	-	Gob.	32.0	23.0	0.5	-	-	-
Outdoor work area	rect.?	-	1	-	-	-	-	-	-	-	-	1	-	-	Gob.	20+	20+	-	-	-	-
LA 4072 - Cist	rect.	-	-	-	-	-	-	-	-	-	-	-	1	-	Gob.?	5.5	4.3	-	X	1	4.0
LA 4294 - Shelter	semi-lunar	1	5	5	-	-	-	1	-	1	-	-	-	-	Din. Gob.	79.0	6.0 - 12.0	1.2 - 8.0	X	2	-
LA 4297	circ.	-	1	-	3	-	-	-	-	-	-	1?	-	-	Gob.	11.0	10.0	0.3	-	1	-
Hogan 1 upper level	oval	-	-	-	-	-	1	-	-	-	-	1?	-	-	Gob.	16.5	12.2	0.3	-	1	-
Hogan 1 lower level	circ.	-	1	-	-	-	-	-	-	-	-	-	-	-	Gob.	1.0	1.0	0.2	-	-	-
Isolated fire pit	oval	-	-	-	7	1	-	-	-	-	-	-	-	-	Gob.	10.0	8.0	0.0	-	-	-
Hogan 2	oval	-	-	-	-	-	-	-	-	-	-	-	-	-	Gob.	18.0	15.0	0.4	-	-	-
Rock pile 1	oval	-	-	-	-	-	-	-	-	-	-	-	-	-	Gob.	10.0	7.0	0.2	-	-	-
Rock pile 2	oval	-	-	-	-	-	-	-	-	-	-	-	-	-	Gob.	86.0	20.0	17.0	-	-	-
LA 4298 - Rock shelter 1	semi-lunar	-	4	-	-	13	-	-	-	-	-	-	6	-	Samb. Piedra	-7.6	-7.6	-7.6	X	1	1.3
- Rock shelter 2	semi-lunar	1	-	-	-	-	-	-	-	-	-	-	-	-	Gob.	43.0	17.5	7.3	X	1	4.6?
LA 4299 - Shelter	semi-lunar	1	-	-	-	-	-	-	-	-	-	-	-	-	Gob.	47.0	23.0	1.0	X	3	1.7

TABLE 28
ARCHITECTURAL SUMMARY BY SITE

LA Number	Site Type	Phase	Structure							Interior Features							Other Features					
			Hogans	Rooms	Walls in Cave	Sweat Lodge	Rock piles	Ramada	Surface Structure	Hearths	Fire pits	Post holes	Cooking pits	Entryway	Metate Resists	Floor Artifacts	Mealing Bins	Roof Supports	Burials	Sub-floor Pits	Foundation Stones	Trash Areas
4199	Hogan village	Gob. Piedra	5	-	-	-	-	1	-	3	4	45	1	2	2	6	-	29	-	5	2	-
4411	Rock shelter	Navajo	-	-	-	-	1	-	-	-	-	1	-	-	-	2	-	-	-	-	-	-
4314	Pueblito	Gob.	-	-	-	-	-	-	-	-	-	-	-	1	-	1	3	-	-	-	1	-
4312	Trash area	Gob.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
4331	Pueblito	Gob.	-	4	-	-	-	-	-	1	2	-	-	-	-	-	1	X	-	-	-	2
4072	Cist	Gob.?	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
4294	Rock shelter	Gob.	-	2	2	-	-	-	-	1	5	5	-	1	-	1	-	-	-	-	-	-
4297	Multiple Unit - Open	Gob.	1	-	-	1	2	-	-	-	2	-	1	-	-	-	2?	10	-	1	-	-
4298	Rock shelter	Samb. Piedra	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	6	13	-	-
		Dinetah Gob.	-	2	2	-	-	-	-	7	1	-	-	-	-	-	-	-	-	-	-	-
4299	Rock shelter	Gob.	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Attributes			6	14	8	1	3	1	1	12	18	51	2	4	2	10	3?	42+	7	19	2	4

DISCUSSION

Because most of the architectural features described in this report are of the Gobernador Phase, the summary will be limited to that phase. Features from earlier occupations will be summarized in future publications dealing with those periods.

Certain features are common to the village sites. However, these are combined in various ways at each site. Because the sites are small, a number of them need to be studied in order to discern the patterns.

Specific architectural features attributable to the Pueblo Refugees are stone masonry in pueblitos and caves, mealing bins, and possibly metate rests and loom post holes. Associations of these features within the sites are rather specific. No masonry structures were found in association with hogans. However, smaller features, such as the mealing bins and possibly metate rests and loom post holes, are associated with hogans.

The architecture of the Gobernador Phase has been described by various authors (Keur, 1941, 1944; Hill, 1938) and summarized by Hester (1962). It is now possible to contrast the architectural patterns described in this report with those of similar age outside the Reservoir. Comparable materials nearest the Navajo Reservoir occur in the Largo and Gobernador drainages to the south. These localities bear the closest cultural similarities. Comparisons farther afield show few points of resemblance.

Although most of the features noted in the Reservoir are duplicated

in the Gobernador and Largo drainages, the converse is not true at all. The latter district has the following features not represented in the Reservoir: stone-walled hogans, cribbed-log hogans, tower pueblito, defensive walls, Spanish style fireplaces, dance grounds, and cist burials.

A further difference lies in the size of the sites. Pueblitos in the Gobernador area are as large as forty rooms; those in the Navajo Reservoir are three rooms or smaller. The major cultural conclusion to be drawn from these facts is that the Navajo Reservoir is at the extreme northern edge of the area inhabited by Pueblo refugees after the Pueblo Revolt. The differences between the Reservoir and the areas farther south are manifest in more abundant remains in the latter district. Pueblo refugees were living there in greater numbers, and in groups which must have preserved the major aspects of Pueblo social organization. By contrast, it is apparent that if Pueblo refugees occupied the Navajo Reservoir, they must have been few in number, living as isolated family units.

Another possibility is that these small pueblitos within the Reservoir represent occupation only during the growing season, and that the seasonal migrants returned to large population centers during the winter.

It is clear that the major Navajo-Pueblo acculturation did not occur within the boundaries of the Navajo Reservoir but took place in the localities immediately to the south.

CHAPTER VI

SUMMARY OF MATERIAL CULTURE

PRE-NAVAJO REMAINS

Material objects dating from earlier than the Navajo Period came from one cave and several scattered open sites. Because these objects and their significance will be treated in detail in a future report, they will be only summarized here.

An Archaic projectile point found at LA 4297 appears to be intrusive there. Archaic sites are present in the Reservoir, but LA 4297 is not one of them. Remains of the Sambrito Phase

(A.D. 400-700) found at LA 4298 are two pottery vessels, clay and stone pipes, and a large stone pendant. Rosa Phase materials consisted of numbers of potsherds, recovered mostly on the same terraces on which Navajo sites occurred. A burial at LA 4298, apparently from the Piedra Phase (A.D. 850-950), contained a leather robe and half of a Bluff Black-on-Red jar. No materials were encountered that dated between the Piedra and Dinétah Phases.

NAVAJO PERIOD

Two phases within the Reservoir represent the extent of the Navajo occupation. The Dinétah Phase is limited to Navajo culture prior to the acculturation acquired through intimate contact with refugee Pueblo peoples. It is a partly acculturated period because contacts had already been made with Pueblo people, probably in the vicinity of Taos or Jemez. The nature of this early

acculturation is outside the scope of this report.

Gobernador Phase materials are those characterizing the period when the Navajo were in actual contact with Pueblo Refugees. Although the material changes attributable to this new association are not marked, numerous Gobernador Phase sites are located within the Reservoir.

THE ARTIFACTS OF THE NAVAJO PERIOD

Because the Navajos apparently re-used older tools, it is not possible to describe a typical projectile point of Navajo manufacture. Among the types found in the sites are points of Archaic Period to contemporary Pueblo cultures. It is believed that the Navajos did make a small, oval, unstemmed form which is unevenly chipped (Fig. 43,b). This type is not found in Pueblo sites, and could represent the one form actually produced by Navajos.

Blades from Navajo sites are symmetrical and bifacially chipped or flaked. Some of the specimens show a technique of percussion flaking followed by pressure chipping. Like the projectile points, the blades were frequently salvaged from older sites, and it is almost impossible to distinguish between those made by the Navajos and those collected from Pueblo sites.

Primary flakes with bifacial chipping on one or more edges have been classified as knives. They differ from blades in their lack of symmetry, particularly in regard to overall shape. The Navajo knives vary considerably in size, but are more consistent in shape. Typical forms are triangular to sub-rectangular and exhibit a tendency toward use on one edge. The most frequent form has an edge that is straight to slightly convex. Fine-grained materials such as petrified wood, obsidian and Pedernal chert were preferred.

Almost every flake of glassy texture found in Navajo sites shows the effects of use. Some of the flakes were modified prior to use by pressure chipping one or more sides to produce a straight, convex, or concave edge. The majority, however, were used without prior modification. Among the prepared forms, the side scraper was preferred, and the other types occur infrequently.

Saws were made from flakes of uniform thickness, and were chipped only so far as to produce the saw teeth. No attempt was apparently made to alter the basic shape of the flake. Three or four teeth are usually found on a single tool. No distinguishing features separate Navajo saws from those made in the Western Pueblos, and it may be that these, too, were salvaged or copied.

Because only two stone drills were recovered from this group of Navajo sites, no generalizations can be made. Both examples are unstemmed and rather carelessly chipped. They were made by minimal chipping of a slim pointed flake, producing a straight sided, tapering drill having a blunt point. They would probably have required hafting to be effective.

Gravers have been found in a number of the sites, particularly in association with yucca in the rock shelters. Some of the gravers were used without any alteration, if the flake happened to possess a natural sharp corner. Others were chipped just enough to accentuate the point. All exhibit a polish on the tip which suggests use on fibrous materials. The usual shape is discoidal

in outline and plano-convex in cross-section.

Chopping tools are normally unifacially flaked, but occasional specimens show bifacial flaking. All are made from stream-worn cobbles, usually of a tough grained material such as basalt. There are variations in size, but a weight of ten or twelve ounces seems to have been preferred. The extent of the flaking is from one-fourth to one-half of the perimeter of the tool.

At least three styles of hammers are common. Small elongate pebbles show use marks on the ends, and larger more spheroid cobbles were also used terminally. A third type was flaked in order to reduce the width of the striking surface, but not flaked to a sharp edge as were the choppers. Hammer weights are quite variable, and it is not yet possible to define classes within the weights. All appear to have been used on other stone, perhaps in shaping and sharpening manos and metates.

Data are lacking on the manos of the Dineta Phase, but the characteristic type appears to be rounded, thin, and made for one-hand use in a shallow basin metate. In addition to this type, there are several one-hand manos, apparently salvaged from early Pueblo sites; and two-hand trough manos, probably from later Pueblo sites.

Manos of the Gobernador Phase are more abundant. All of the specimens are large, flat, two-hand forms used on slab metates. In general, they are rectangular and have rounded corners, similar to contemporary Pueblo forms, but they are less well finished. The lengths and widths vary, for many are river cobbles only slightly modified. There are no facets of reciprocal motion.

The metates of the Dineta Phase are mixed basin and trough types, and a number were probably salvaged from earlier sites. In the Gobernador Phase, however, only the slab metate was used. The majority of these are poorly shaped and finished except on the grinding surface.

Grinding palettes are found in Navajo sites, but not in quantity. They are normally made of sandstone, flaked on the edges to a rounded or oval shape, and ground smooth on one face. Occasionally that face is lightly pecked with a sharp tool as if to sharpen it.

Polishing stones are infrequent. Of the three examples found, two appear to have been used on large surfaces, such as an adobe floor or wall plaster. The other one could have been used on pottery. Because Dineta Utility is not polished, there is little probability of finding many polishing stones except in the latest of the Gobernador Phase sites when, presumably, Navajos produced Frances Polychrome.

Shaft tools include one coarse-grained grooved abraded intended for smoothing, and one fine-grained grooved tool probably intended for straightening shafts in conjunction with the use of heat. Similar tools have been found in other Navajo sites within the Reservoir District. Elaborate forms found in Pueblo sites of that time were not used by the Navajo.

Digging sticks found in the rock shelters are all fragmentary. The remnants show only that the sticks were infrequently peeled or smoothed and were simply whittled to a blunt point.

Other objects of wood are less frequent, and often appear as single items or as only a few specimens of each type. They include fire drills and hearths, cane and shafts from compound arrows, and hoops, possibly from basketry trays. These artifacts and other perishables are probably characteristic of both the Dineta and Gobernador Phases.

Although Yucca bacata and Yucca glauca were both abundant in the rock shelters as leaf fragments, only the former appears to have been used in the textiles. It was used frequently in making cup-heeled sandals, twined cord, and thongs. Knotted thongs and cord are common. Simple overhand knots were tied in single or multiple strands. Square and granny knots were used to join two single or two groups

of strands. One complex multiple knot involves a three-strand crown. The latter was probably non-utilitarian. Occasionally, ordinary sticks or twigs were wrapped with several turns of yucca thong, but their purpose is not known.

Leather was apparently in infrequent use, but only remnants and scraps were found. The scraps are soft and pliable, and are not rawhide.

The bottle gourd was well known, for fragments of three dippers were recovered in the rock shelters. None of the dippers were decorated, but one had been repaired by stitching.

Bone tools in Navajo sites are rare compared to the number usually found at Pueblo sites. Either the Navajo did not use very many, or else they treasured the bone tools to the point that few were discarded. The forms are restricted to awls with straight tips, without notches, grooves, or holes through the handle. One specimen with a point at each end may have been a chipping tool.

Ornaments are seldom recovered, and forms that might be expected do not occur at all. Among those found are juniper berry beads, bone tubes, wooden cylinders, and a rounded fragment of a spiral gastropod shell. Turquoise was not found in any form, nor were there any small disc beads of stone or bone. The Navajo love of jewelry apparently developed in a later period.

The Dineta Phase

The ceramics made locally include only Dineta Utility and Gobernador Indented. Jemez Black-on-White appears to have been traded in, but no other Pueblo pottery is present.

Raw materials were obtained by trade or by expeditions. Among these are obsidian and Pedernal chert from the Jemez-Abiquiu District, and copper pigments from the Ojo Caliente District.

The Gobernador Phase

The pottery complex is the same as that of the Dinetah Phase, but with the addition of Pueblo Polychromes and a local copy of Gobernador Polychrome called Frances Polychrome.

The phase can also be recognized by the appearance of new artifact types. Slab manos and metates, elongate flake knives struck from a prepared core, and beads of shell and juniper berries seem to have been introduced at this time.

In the summary section on architecture, the matter of the geographical isolation of the reservoir was stressed. The material culture of the Gobernador Phase certainly indicates isolation from Pueblo and European population centers. In comparison with more southerly districts, the Navajo Reservoir sites show minimal contact with Pueblo Indians and none with Europeans.

Period Synthesis

The initial survey of the Reservoir resulted, among other things, in the development of hypothetical definitions of the traits represented in each phase (Dittert, *et al*, 1961, p. 246). A comparison of the trait list in that study with the materials discussed in this report shows a high degree of correspondence. Although the ten sites cannot be considered to have yielded conclusive results, they do suggest which traits might be added to, or subtracted from, the original list.

In the Dinetah Phase, side-notch axes and full-groove mauls were not found. Use of the digging stick is questionable, and apparently there was more trade in stone material than was originally believed. Yucca sandals with cupped heels, leather artifacts, and the

use of copper mineral pigments apparently should be added as traits of the Dinetah Phase.

The Gobernador Phase trait list is unchanged by the excavations, except that gilsonite pendants and wooden basketry awls were not found in these sites. The digging stick can be added to the list. It is also possible to add to the Gobernador Phase those new traits which have been listed for the Dinetah Phase.

The preliminary trait list drawn from the survey was remarkably accurate. What appear to be discrepancies in the excavated materials, particularly in the Dinetah Phase, may disappear through examination of a larger sample. The excavated materials of the Gobernador Phase offer ideal confirmation of the survey hypothesis.

Throughout this report, except in the case of LA 4299, reference has been made to the almost exclusively domestic and subsistence activities at Navajo sites. An overwhelming majority of material objects recovered relate to hunting, gathering, farming, the processing of food, and the production of clothing. Few artifacts--occasional beads, a prayer stick, bits of carved wood, and a clay pipe--reflect activities other than those of pure subsistence. However, another facet of Navajo existence is revealed through their rock art.

All of the Navajo pictographs appear to be from the Gobernador Phase, and a number of them depict human figures in ceremonial dress (Schaafsma, 1963, p. 54,55). These figures indicate that the ceremonial paraphernalia includes flutes, dance paddles, and necklaces and the many forms of clothing include masks, feather headdresses, kilts, and sashes. None of the above were recovered in the excavations.

APPENDIX

List of Previous Navajo Project Studies

<u>Study Number</u>	<u>Publication</u>
1.	Dittert, A.E., Jr. 1958 <u>Preliminary Archaeological Investigations in the Navajo Project Area of Northwestern New Mexico.</u> Museum of New Mexico Papers in Anthropology No. 1. The Museum of New Mexico and the School of American Research.
2.	Dittert, A.E., Jr., J.J.Hester, and F.W.Eddy 1961 <u>An Archaeological Survey of the Navajo Reservoir District Northwestern New Mexico.</u> Monograph of the School of American Research and the Museum of New Mexico, No. 23.
3.	Greminger, H.C. (assembler) 1961 <u>Papers from a Training Program in Salvage Archaeology.</u> Museum of New Mexico Papers in Anthropology, No. 3.
4.	Eddy, F.W. 1961 <u>Excavations at Los Pinos Phase Sites in the Navajo Reservoir District.</u> Museum of New Mexico Papers in Anthropology, No. 4.
5.	Hester, J.J. 1962 <u>Early Navajo Migrations and Acculturation in the Southwest.</u> Museum of New Mexico Papers in Anthropology, No. 6.
6.	Schaafsma, P. 1963 <u>Rock Art in the Navajo Reservoir District.</u> Museum of New Mexico Papers in Anthropology, No. 7.
7.	Harris, A.H. 1963 <u>Ecological Distribution of Some Vertebrates in the San Juan Basin, New Mexico.</u> Museum of New Mexico Papers in Anthropology, No. 8.

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- Wedel, W.R.
1959 An Introduction to Kansas Archaeology. Bureau of American Ethnology, Bulletin No. 174.
- Woodbury, A. (Biological Editor)
1961 Ecological Studies of the Flora and Fauna of Navajo Reservoir Basin, Colorado and New Mexico. University of Utah. Anthropological Papers No. 55.

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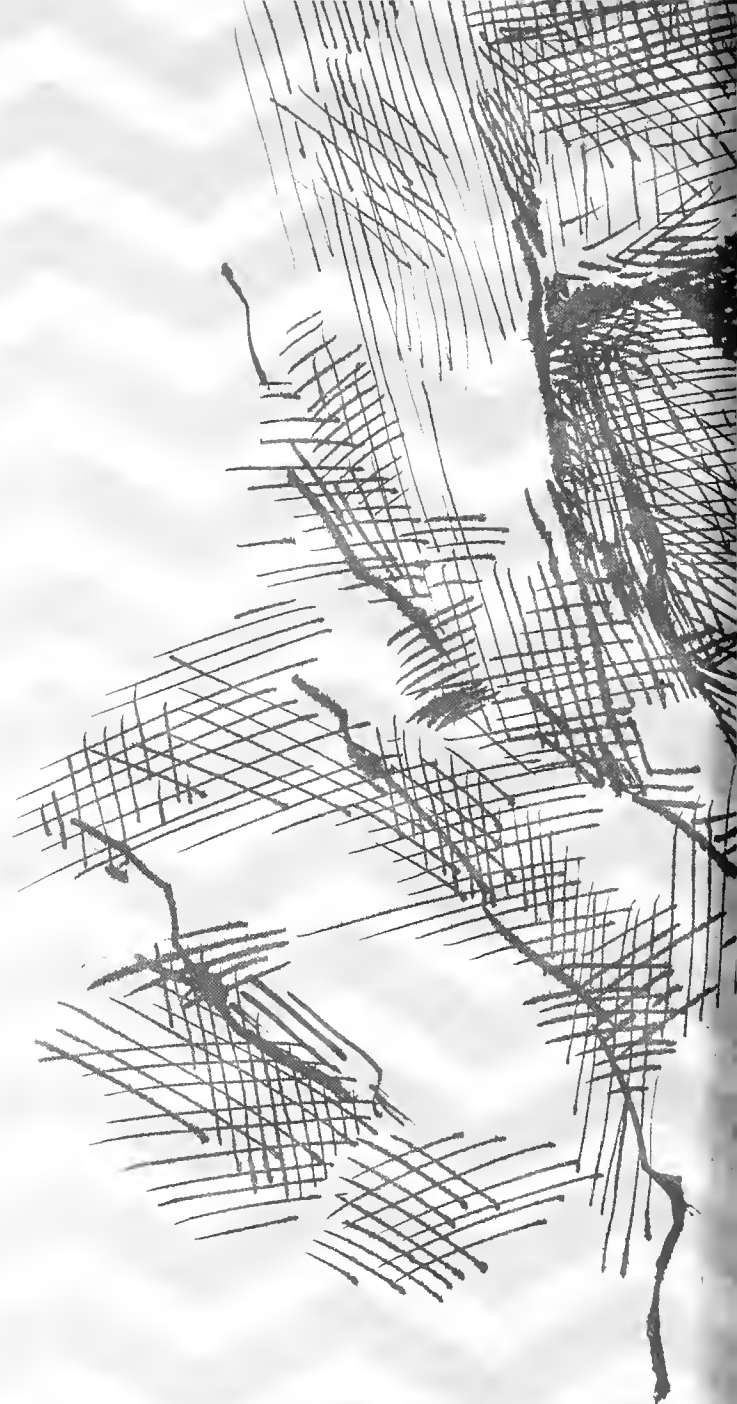
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